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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	4,739.838	804.211	959.066	852.052	-	852.052	805.051	789.217	656.164	695.306	Continuing	Continuing
MD09: Aegis BMD	4,510.326	686.536	846.028	292.063	-	292.063	285.018	356.447	324.925	332.936	Continuing	Continuing
MG09: Aegis BMD SM-3 Development Articles	-	0.000	0.000	253.276	-	253.276	166.129	73.523	18.291	0.000	0	511.219
MM09: Aegis BMD SM-3 Development	-	0.000	0.000	93.414	-	93.414	121.268	125.305	74.922	111.278	0	526.187
MC09: Cyber Operations	1.700	1.225	0.879	2.340	-	2.340	14.970	22.506	23.079	20.177	Continuing	Continuing
MX09: Aegis BMD Development Support	32.016	80.312	68.283	169.325	-	169.325	177.360	174.101	182.794	197.100	Continuing	Continuing
MD40: Program-Wide Support	195.796	36.138	43.876	41.634	-	41.634	40.306	37.335	32.153	33.815	Continuing	Continuing
Program MDAP/MAIS Code: 362												
Note Decrease from FY 2017 to FY 2018 is due to completion of Aegis Ballistic Missile Defense (BMD) 5.x Development functionality implementation, baseline certification testing and life cycle evolution as the program prepares to shift from development to the production phase.												
A. Mission Description and Budget Item Justification The Aegis BMD mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of Ballistic Missile Defense System (BMDS) upgrades. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing United States Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles (SRBMs), Medium-Range Ballistic Missiles (MRBMs), and Intermediate-Range Ballistic Missiles (IRBMs) in the midcourse phase of flight, and shorter range missiles in the terminal phase of flight. Aegis BMD also provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS. Upgrades to both the Aegis BMD Weapon System and the Standard Missile-3 (SM-3) configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.  This Program Element includes BMDS threat discrimination improvements, which will enhance BMDS effectiveness against the evolving adversary threat. The result will be a BMDS architecture more capable of discriminating and destroying reentry vehicles with a higher degree of confidence, improving Warfighter shot doctrine, and more efficiently using interceptor inventory. BMDS threat discrimination improvements are funded from the Enabling (0603890C), Midcourse (0603882C), BMD Sensors (0603884C), C2BMC (0603896C), and Aegis BMD (0603892C) PEs.												

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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 4:</i> <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>
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This Program Element also investigates concepts and performs systems engineering to address hypersonic threats.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
Previous President's Budget	830.647	959.066	841.738	-	841.738
Current President's Budget	804.211	959.066	852.052	-	852.052
Total Adjustments	-26.436	0.000	10.314	-	10.314
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-9.994	0.000			
• SBIR/STTR Transfer	-16.442	0.000			
• Other Adjustment	0.000	0.000	10.314	-	10.314

**Change Summary Explanation**

The increase in FY2018 from PB17 to PB18 is for completion of SM-3 Block IIA development efforts, which is offset by implementation of reduced contract spending for Mission Support Services in accordance with Department Service Requirement Review Board reductions through increased competition.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MD09: Aegis BMD	4,510.326	686.536	846.028	292.063	-	292.063	285.018	356.447	324.925	332.936	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Decrease FY 2017 to FY 2018 due to continued completion of SM-3 Block IIA development efforts; and completion of 5.x development functionality implementation and completion of Baseline certification testing.

**A. Mission Description and Budget Item Justification**

Aegis Ballistic Missile Defense (BMD) continues development of a Sea-Based BMD capability in support of the MDA's mission to protect the homeland, deployed forces, friends and allies from ballistic missile threats of all ranges and in all stages of flight.

Aegis BMD 5.0 Capability Upgrade (CU) will enhance legacy Aegis BMD 5.0 by improving endo- and exo-atmospheric capabilities, increasing the maximum number of SM-3s in flight simultaneously, expanding the threat set to include those for European Phased Adaptive Approach (EPAA) Phase II, and increasing this capability by delivering improvements as part of Ballistic Missile Defense System (BMDS) upgrades.

Aegis BMD 4.1 capability builds upon legacy Aegis BMD 4.0 and captured all the threats built into Aegis BMD 5.0 CU. It includes Discrimination Improvements algorithms, and an increased BMD threat set, and provides increased maximum engagements and maximum missiles-in-flight over BMD 4.0.

Aegis BMD 5.1 builds upon Aegis BMD 5.0 CU (COTS based open architecture) and further expands the threat set to include threats which are required for EPAA Phase III. This includes the integration of the SM-3 Block IIA, introduction of an Engage on Remote (EoR) capability, and improved BMDS interoperability and engagement coordination.

Aegis BL 5.4 (BMD 4.1) merges the BMD 4.1 capability with the United States Navy (USN) Aegis Baseline 5.3 into a single integrated computer program with planned Navy Certification in FY 2019. Twenty-one legacy Aegis Flight I/II Destroyers, not planned for Aegis Modernization (AMOD), possess two separate certified computer programs: Aegis BMD 4.0 for Ballistic Missile Defense missions and Aegis Baseline 5.3 for Anti-Air Warfare (AAW), Surface Warfare (SUW), and Undersea Warfare (USW). The Aegis BL 5.4 (BMD 4.1) computer program integrates Aegis Baseline 5.3 and Aegis BMD 4.0 to remedy the need for the warfighter to use both simultaneously.

An additional benefit of the single integrated computer program is enabling future SPY-1 Low Noise Amplifier (LNA) Refurbishment efforts to be added during the ship's Service Life

Following Aegis BL 5.4, the Aegis BL 5.4.X (BMD 4.2) AN/SPY-1 upgrade with the US Navy will provide refurbishment of existing ship AN/SPY-1 radar arrays with the installation of antenna Low Noise Amplifiers (LNAs)(MDA funding beginning in FY19). These refurbished and upgraded antennas, when integrated with Aegis BL 5.4.X (BMD 4.2), will increase BMD capabilities with improved sensitivity, discrimination, and more efficient radar resource utilization.

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Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD		
Aegis BMD 6.x provides an increased BMD capability by incorporating the Air and Missile Defense Radar (AMDR), now designated SPY-6 for introduction on the first DDG Flight III. Aegis BMD 6.0 will enable BMDS element utilization of AMDR data for remote engagement and supplement deployed assets with simultaneous multi-mission capabilities (e.g. Integrated Air and Missile Defense (IAMD)). It will include IAMD planning; search, track, and discrimination. Aegis BMD 6.1 will continue to provide an increased BMD capability with the SPY-6 radar. It will include updates for advanced threats, advanced planning, search, track, and discrimination improvements; and kill assessment updates. SPY-6 will support force-level (multi-asset) approach to raid defense and enable Navy ships greater stand-off range from threat environments.					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2017	FY 2018
Title: Aegis Ballistic Missile Defense (BMD) 4.x Development			26.698	28.264	28.071
Articles:			-	-	-
Description: Aegis BMD 4.1 incorporates the BMD 5.0 CU capability of EPAA Phase II ENDO/EXO requirements including EPAA Phase II Exo-atmospheric threats, integration of the SM-3 Block IB Threat Upgrade (TU), and reintroduction of other Aegis capabilities integrated with the SM-6 Dual I (Endo only). It provides Aegis Modernization capabilities comparable to the BMD 4.0 ships with legacy computer processing architecture.					
FY 2016 Accomplishments:					
- Completed 4.1 baseline development as the baseline transitions to co-development with the Navy on merging BMD 4.1 and Navy Aegis Baseline 5.3.					
- Conducted a Test Readiness Review of BMD 4.1 to determine readiness to begin formal testing by evaluating the preparedness of personnel, plans, and test resources					
- Conducted an Engineering Evaluation of BMD 4.1 to demonstrate baseline capabilities as a risk reduction activity during development					
FY 2017 Plans:					
Decrease from FY 2016 to FY 2017 is due to completion of 4.1 computer program development in FY 2016.					
- Begin merger of BMD Baseline 4.1 and Navy Aegis Baseline 5.3 into a single computer program (BMD 4.x/5.3.x) within the legacy computer program architecture					
- Execute coordinated development with US Navy on the combined computer program					
- Conduct System Design Review (SDR)					
- Conduct Preliminary Design Review (PDR)					
FY 2018 Plans:					
Decrease from FY 2017 to FY 2018 due to refinement of integration scope with USN.					
- Conduct Aegis Baseline 5.4 (BMD 4.1) computer program integration efforts, capability development and coding					
- Conduct Aegis Baseline 5.4 (BMD 4.1) unit test and element computer program integration and test					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018
- Conduct Aegis Baseline 5.4 (BMD 4.1) Engineering Test and Evaluation (ET&E), Multi-Element Integration and Test (MEIT) with regression testing				
<p><b>Title:</b> Aegis Ballistic Missile Defense (BMD) 5.0 Development</p> <p><b>Articles:</b></p> <p><b>Description:</b> Aegis BMD 5.0 Capability Upgrade (CU) is a combined weapon system developed with the US Navy. It will integrate Aegis BMD 4.0 capability into the Baseline 9 (Open Architecture) common source library. Aegis BMD 5.0 CU will expand the EXO capability, increasing the maximum number of missiles in flight simultaneously and expanding the threat set to include those for EPAA Phase II. Aegis BMD 5.0 CU is an essential capability to meet the requirements of EPAA Phase II and will provide evolutionary improvements in support of deployed forces, friends, and allies.</p> <p><b>FY 2016 Accomplishments:</b></p> <p>- Completed Aegis BMD 5.0 CU co-development with the Navy for Aegis Modernization</p> <p>- Completed certification and post-certification effort of EPAA Phase II into the Navy's Open Architecture baselines for fielding in the operational Ballistic Missile Defense System</p> <p>- Completed Aegis Intercept Flight Test as reflected in the IMTP and the Exhibit R-4 schedule for initial operational evaluation of operational effectiveness and suitability</p> <p>- Completed VLS development of the Ordnance Alteration (ORDALT) kit and Quality Assurance (QA) to support fielding of 5.0CU capability on USN ships. Activities support the procurement and fielding of hardware and software associated with the MK 41 VLS to be capable to launch SM-3 Block IA/IB and other missile variants</p> <p><b>FY 2017 Plans:</b></p> <p>Funding for completion of Developmental Testing/Operational Testing (DT/OT) testing of Aegis BMD 5.0 CU in Aegis Test 0604878C/MT09. No further funding requested for development.</p> <p><b>FY 2018 Plans:</b></p> <p>N/A</p>		17.766 -	0.000 -	0.000 -
<p><b>Title:</b> Aegis Ballistic Missile Defense (BMD) 5.x Development</p> <p><b>Articles:</b></p> <p><b>Description:</b> Aegis BMD 5.1 builds upon BMD 5.0 CU and will further expand the threat set to include those threats required for EPAA Phase III through the integration of the SM-3 Block IIA, introduction of an Engage on Remote (EoR) capability, and improved BMDS interoperability and engagement coordination. In addition to expanding the BMD battlespace, EoR with SM-3 Block IIA frees up radar resources and increases the number and type of threats that can be engaged simultaneously over previous baselines. Aegis BMD Phase 1 capabilities include SM-3 Block IIA missile integration, SM-3 weapons selection algorithm, enhanced tracking, discrimination and mission planner updates to support organic engagements, Launch-on-Remote</p>		177.356 -	92.364 -	63.400 -

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>
<p>(LoR) engagements, and Long Range Surveillance &amp; Tracking (LRS&amp;T) missions. Aegis BMD 5.1 Phase 1 integration, testing, and evaluation (IT&amp;E) events include various lab-based and shipboard weapon-system-to-missile integration testing utilizing the Virtual Operational Missile (VOM) and the Inert Operational Missile (IOM), as well as participation in BMDS-wide ground test campaigns. Aegis BMD 5.1 Phase 1 development supports early integration and testing with the SM-3 Block IIA missile testing planned for SFTM-1 and SFTM-2. The development of partial capability is contiguous across both Phase 1 and Phase 2 and supports delivery for EPAA Phase III. Aegis BMD 5.1 Combat System certification occurs in FY 2018.</p> <p><b>FY 2016 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>- Implemented efforts in test functionality and support of scheduled flight tests</li> <li>- Aegis BMD 5.1 Phase 1 System Development: Continued Engineering, Development, Integration and Testing of the tactical Weapons System computer program, and integration of the SM-3 Block IIA missile. This development reduces risk to Aegis BMD 5.1 Phase 2 and EPAA Phase III by front-loading the development of the weapons system/missile functionality and integration to support the upcoming SCD Flight Test Mission-1 (SFTM-1) and SFTM-2 flight tests</li> <li>- Conducted Engineering Assessment (EA) of Aegis BMD 5.1 functionality, stability, performance and readiness for the test execution of SFTM-1 and SFTM-2 as reflected in the IMTP</li> <li>- Continued software development for the partial Aegis BMD 5.1 Phase 2, which includes all Phase 1 capabilities, and partial EPAA Phase III capabilities and threats</li> <li>- Continued assessment cycles to prepare certification and deployment of Aegis BMD 5.1 computer program at sea and ashore for EPAA Phase III</li> <li>- Conducted Aegis BMD 5.1 Vertical Launching System (VLS) Formal Integration and Qualification Testing required for the fielding of 5.1 capability on DDG Flight I &amp; II configured USN ships and Aegis Ashore</li> <li>- Continued Aegis BMD VLS modifications required for the fielding of 5.1 capability on DDG Flight IIA configured USN ships</li> <li>- Evaluated Mark (MK) 41 VLS performance results during Controlled Test Vehicle-1 (CTV-1) and CTV-2 and applied results to verify the capability of MK 41 VLS to fire the SM-3 Block IIA prior to shipboard testing</li> <li>- Conducted Aegis BMD 5.1 MK 41 VLS Formal Integration and Qualification Testing in support of fielding on DDG Flight I and IIA ship configurations</li> <li>- Provided MK 41 VLS support to Aegis Integration Event (AIE) to verify the compatibility of the MK 41 VLS firing the SM-3 Block IIA with Aegis BMD 5.1 and performed regression testing</li> <li>- Conducted Aegis BMD 5.1 MK 41 VLS Certification and Safety Assessments for shipboard fielding to obtain Naval Ordnance System Safety Activity authorization for the placement of the SM-3 Block IIA in the MK 41 VLS approving the safe firing of the SM-3 Block IIA</li> <li>- Execute provisions for transition to production of Aegis BMD 5.1 MK 41 VLS modifications required on USN ships for the fielding of 5.1 capability with SM-3 Block IIA</li> </ul>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
All efforts on schedule to meet EPAA Phase III deployment					
<b>FY 2017 Plans:</b> Decrease from FY 2016 to FY 2017 is due to completion of major development functionality and shifting focus to implementation and development testing at-sea and completion of VLS Development efforts and transition to fielding and sustainment. <ul style="list-style-type: none"> <li>- Continue software development for the Aegis BMD 5.1 Phase 2, which includes all BMD 5.1 capabilities, including EPAA Phase III capabilities and threats</li> <li>- Incorporate developmental and maintenance Computer Program Correction Reports (CPCRs) as defined from Developmental Testing (DT)</li> <li>- Provide preparation activities and post-mission analyses of flight tests</li> <li>- Provide lab-based and shipboard Integration Testing &amp; Evaluation (IT&amp;E), fulfilling agreement with Japan in the SM-3 Block IIA Cooperative Development program</li> <li>- Conduct integration testing for Command and Control Processor (C2P) Tech Refresh and Common Data Link Management System (CDLMS) 3.9 to support pre-mission analysis of EoR engagement</li> <li>- Conduct Jamming Exercise (JAMEX), Functional Assessments (FA) and System Functional Tests (SFT) in preparation for the Demonstration of Aegis BMD 5.1</li> <li>- Conduct demonstration of Aegis BMD 5.1 to assess and accurately characterize the BMD 5.1 Aegis Combat System (ACS) computer program implementation for the deployment and execution of developmental test / operational test as reflected in the IMTP</li> <li>- Support BMDS ground test events as reported in the IMTP</li> <li>- Perform assessment cycles to prepare certification and deployment of Aegis BMD 5.1 computer program at sea and ashore for EPAA Phase III</li> <li>- Conduct pre-mission analyses, integration testing events, Test &amp; Evaluation Working Group (TEWG) planning activities in support of the IMTP</li> </ul>					
All efforts on schedule to meet EPAA Phase III deployment					
<b>FY 2018 Plans:</b> Decrease from FY 2017 to FY 2018 is due to completion of development functionality implementation and completion of baseline certification testing <ul style="list-style-type: none"> <li>- Continue development testing at-sea, supporting BMDS ground test events, collecting objective qualitative evidence (OQE) to support Navy certification, MDA Operational Capability Baseline review, and EPAA Phase III Technical Capability Declaration (TCD)</li> </ul>					

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<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>- Incorporate developmental and maintenance Computer Program Correction Reports (CPCRs) as defined from Developmental Testing (DT)</li> <li>- Complete system functional testing at both lab-based and shipboard installations. Includes integration, checkout, pre-mission analysis, preparation activities, and post-mission analyses to provide the critical Objective Qualify Evidence (OBE) in support Navy certification of the Aegis BMD 5.1 computer program</li> <li>- Conduct C2P Tech Refresh and Common Data Link Management System (CDLMS) 3.9 to support pre-mission analysis of EoR engagement, to support the installation on ships and ashore</li> <li>- Conduct development testing to assess Aegis BMD 5.1 computer program compliance with maintainability requirements</li> <li>- Perform assessment cycles to evaluate system maturity and progress towards certification and deployment of the Aegis BMD 5.1 computer program at sea and ashore for EPAA Phase III</li> <li>- Conduct Navy link certification, Navy Maintainability Demonstration, and Navy Combat System certification in support of EPAA Phase III deployment</li> </ul>					
<b>Title:</b> Aegis Ballistic Missile Defense 6.x Development  <b>Articles:</b>  <b>Description:</b> U.S. Navy is developing the Advance Capability Build (ACB) 20 Combat System (CS) and the Air and Missile Defense Radar (AMDR), now designated SPY-6, for introduction on the first DDG Flight III. Aegis BMD 6.x development consists of two major components: Aegis BMD 6.0 and Aegis BMD 6.1. Aegis BMD 6.0 will integrate BMD 5.1 capability with the ACB 20 Combat System, to include new SPY-6 requirements; this will enable BMDS element utilization of AMDR data for remote engagements and supplement deployed assets with simultaneous multi-mission capabilities (e.g. IAMD). It will include updates for IAMD planning; search, track, and discrimination. Additionally, Aegis BMD 6.1 will continue to provide an increased BMD capability with the SPY-6 radar. It will include further updates for advanced threats, advanced planning, search, track, discrimination improvements; and kill assessment updates. SPY-6 will support force-level (multi-asset) approach to raid defense and will enable Navy ships to have a greater stand-off range from threat environments. Aegis BMD 6.1 will build upon BMD 6.0 and will serve as the path forward to achieve BMDS Increment 6 threats, Electro Optical Integration (EO/IR) for remote engagements, and increased raid capacity.  Recurring Accomplishments: <ul style="list-style-type: none"> <li>- Conduct trade studies and concepts supporting A-Spec development</li> <li>- Conduct development of BMD 6 ES</li> <li>- Conduct Aegis BMD low-level performance analysis supporting SFR</li> <li>- Prepare for Preliminary Design Review (PDR)</li> <li>- Continued participation in program leadership and technical forums including Program Management Team, System Engineering Cross Product Team (CPT), Capability Working Groups, Modeling &amp; Simulation CPT, and Test, Evaluation &amp; Certification CPT</li> </ul>			13.125 -	26.305 -	79.207 -



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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2017	FY 2018
<p><b>FY 2016 Accomplishments:</b> BMD 6.0 baseline development</p> <ul style="list-style-type: none"><li>- Prepared for and conducted BMD 6.0 System Requirements Review (SRR)</li><li>- Developed the BMD 6 Element Specifications and conducted government performance feasibility analysis to establish BMD 6.0 requirements baseline</li><li>- Generated supporting engineering planning documents for Baseline development</li><li>- Compiled SRR data package and conducted Navy Review Team (NRT) review to validate system requirements</li><li>- Conducted threat data updates in support of generation of BMD and IAMD compliance cases</li><li>- Conducted preliminary high-fidelity analysis characterizing SPY-6's Long Range Ballistic Missile (LRBM) search and track capability</li><li>- Identified and documented options for modifying the functional allocation breakdown of the Probability of Single Shot Engagement Kill (Pssek and Probability of Surveillance Support (Pss) used for BMD 5.1 for application to BMD 6.0 and the introduction of SPY-6</li><li>- Prepared for and conducted multiple BMD 6.0 Flag Status Reviews</li></ul> <p><b>FY 2017 Plans:</b> Increase from FY 2016 to FY 2017 is all inclusive to the following:</p> <ul style="list-style-type: none"><li>- Prepare for System Functional Review (SFR) to finalize the BMD components of the ACB 20 Combat System Requirements (A-Spec)</li><li>- Assess feasibility analysis of BMD 6 Element Specification (ES) performance requirements</li><li>- Develop supporting engineering planning documents</li><li>- Compile SFR data package and conduct Navy Review Team (NRT) review to validate system requirements</li><li>- Initiate development of the ACB 20 Prime Item Development Specification (PIDS) requirements and Critical Item Development Specification (CIDS)requirements</li><li>- Prepare for Preliminary Design Review (PDR) to finalize the BMD components of the ACB 20 PIDS</li><li>- Conduct trade studies and concepts supporting PIDS and CIDS development</li><li>- Conduct Aegis BMD performance analysis supporting PDR</li><li>- Compile PDR data package and begin NRT review to validate system requirements</li></ul> <p><b>FY 2018 Plans:</b> Increase from FY 2017 to FY 2018 attributed to detailed design of Aegis BMD 6.0 in preparation for Critical Design Review (CDR) which will finalize the baseline program performance requirements and commencement of the Aegis BMD 6.1 baseline development to increase performance against advanced ballistic missile threats</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2017	FY 2018
BMD 6.1 baseline development - Conduct development of BMD 6 ES for additional threats for greatly expanded capability of the BMDSS - Prepare for and conduct Preliminary Design Review - Develop CIDS, Interface Description Specifications (IDS) and all supporting engineering document and plans - Conduct Aegis BMD performance analysis supporting Critical Design Review (CDR) - Prepare and conduct System Requirements Review (SRR) - Conduct trade studies and concepts supporting A-Spec development - Conduct Aegis BMD low-level performance analysis supporting SRR					
Title: Standard Missile-3 (SM-3) Block IB Development  Articles:  Description: This effort develops the SM-3 Block IB missile, which improves on the SM-3 Block IA performance and enables engagement of more sophisticated ballistic missiles and larger raid sizes.  SM-3 Block IB Modernization will provide the following upgrades:  - Upgraded SM-3 KW Common Avionics Package will provide improved producibility and reduced cost resulting from utilization of common components between SM-3 Block IIA and the Redesigned Kill Vehicle (RKV). SM-3 Block IB Common Components will be extendable to support different form/fit in circuit card assemblies across SM-3 Block IB, SM-3 Block IIA, and RKV and will mitigate SM-3 Block IB hardware availability issues. - Upgraded SM-3 Block IB Guidance Section (GS) will resolve Computer Processing Unit 3 and Plate 3A hardware availability issues, enable use of 5.1/IIA Target Object Map (TOM) and similar software to SM-3 Block IIA Mission Computer; and enable additional capability against complex threats.  FY 2016 Accomplishments: - Assessed the SM-3 Block IB missile capability against evolving threat characteristics to define improvements in missile discrimination processes to counter threat changes - Began development of common avionics architecture between SM-3 Block IB and SM-3 Block IIA. This includes a SM-3 Block IB sized Read Out Integrated Circuit (ROIC) based on SM-3 Block IIA technology for increased acquisition range for greater capability against extended range threats, repackage SM-3 Block IIA Kinetic Warhead (KW) Guidance Electronic Unit (GEU) hardware to fit within SM-3 Block IB allowing implementation of SM-3 Block IIA software improvements to enhance missile performance against advanced threats  FY 2017 Plans:			14.619 -	1.958 -	0.000 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency		<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD	<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>
Decrease from FY 2016 to FY 2017 is due to deferral of further development of the SM-3 Block IB sized Read Out Integrated Circuit (ROIC) based on SM-3 Block IIA technology for increased acquisition range			
<b>FY 2018 Plans:</b> All efforts for this accomplishment have transitioned to Budget Project, MM09 Aegis BMD SM-3 Development			
<b>Title:</b> Standard Missile-3 (SM-3) Block IIA Development		78.246	213.271
<b>Articles:</b>		-	-
<b>Description:</b> The SM-3 Block IIA is required to meet EPAA Phase III. It will increase the area that can be defended by Aegis BMD, increase the probability of kill against a larger threat set, and leverage enhanced capability provided by BMDS sensor upgrades.			0.000
Recurring Accomplishments: <ul style="list-style-type: none"> <li>- Conduct SM-3 Block IIA software update to support engagements against additional complex threats identified during Aegis BMD 5.1 design process conducted after missile Critical Design Review (CDR)</li> <li>- Conduct End to End Distributed Development System (ETEDDS) integration testing; and flight test support</li> <li>- Continue implementation of SM-3 Block IIA cost reduction initiatives to support meeting cost goals to reduce the current estimated Average Unit Production Price (AUPP)</li> </ul>			
<b>FY 2016 Accomplishments:</b>			
<ul style="list-style-type: none"> <li>- Continued Aegis BMD 5.1 weapon system and SM-3 Block IIA Missile integration and testing</li> <li>- Continued Kinetic Warhead (KW) Guidance Electronic Unit (GEU) hardware commonality development efforts to enhance missile performance against advanced threats</li> <li>- Continued adaptations to the SM-3 Block IIA missile to include software and G-switch modifications that meet range safety requirements for Aegis Ashore.</li> <li>- Began Guidance Section Circuit Card Assembly manufacturing environmental test capability improvements to reduce Average Unit Production Price (AUPP)</li> </ul>			
<b>FY 2017 Plans:</b>			
Increase from FY 2016 to FY 2017 is due to:			
<ul style="list-style-type: none"> <li>- Transition of Kinetic Warhead (KW) hardware commonality effort (from design to material purchases) to system integration testing in order to demonstrate technology readiness level 7</li> <li>- Implementation of updated missile software build, test and qualification for FTM-29 and FTO-03 flight testing,</li> <li>- Increased integration testing with Aegis Baseline based on matured test requirements</li> </ul>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>- Continue Guidance Section Circuit Card Assembly manufacturing environmental test capability improvements to reduce Average Unit Production Price (AUPP)</li> <li>- Build up SM-3 Block IIA All Up Round(AUR)for FTM-29 from residual Standard Missile-3 Cooperative Development(SCD)Program hardware to address schedule impact from long lead material for FY2016 manufacturing contract</li> </ul> <p>Efforts will also:</p> <ul style="list-style-type: none"> <li>- Continue SM-3 Block IIA engineering integration and testing with the Aegis BMD 5.1 Weapon System</li> <li>- Support Parts, Materials, Processes, Mission Assurance, and System Engineering as it relates to the SM-3 Block IIA</li> <li>- Complete adaptations to the SM-3 Block IIA missile to include software and G-switch modifications that meet range safety requirements for Aegis Ashore</li> </ul> <p><b>FY 2018 Plans:</b> All efforts for this accomplishment have transitioned to Budget Project, MM09 Aegis BMD SM-3 Development</p>					
<p><b>Title:</b> Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Aegis BMD Core System Engineering enables cross-baseline specification management and capability assessments to ensure consistent application of technical standards, processes, and procedures across the Aegis BMD program. Efforts include: systems engineering and architecture (process and execution), modeling and simulation (M&amp;S), test and evaluation support, ship integration, quality, safety and mission assurance.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> <li>- Conduct further development of Aegis BMD System Architecture and overarching system concepts</li> <li>- Conduct BMDS system level requirements development, trace, validation and verification, and configuration management for coordination with all participating external agencies and organizations</li> <li>- Ensure consistency and alignment of Command, Control, Communications, Computers, and Intelligence (C4I) implementation across Aegis BMD baselines</li> </ul> <p><b>FY 2016 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>- Development of the Planned Product Improvement for both Divert and Attitude Control System (DACS) and Third Stage Rocket Motor (TSRM) for SM-3</li> <li>- Conducted medium fidelity Monte Carlo Analysis to align Aegis BMD Capability Baselines with BMDS performance requirements, design space and threat capability assessments</li> <li>- Developed Performance Assessment Matrix, Threat Compliance and Critical Engagement Conditions/Empirical Measurement Events (CEC/EMEs) to influence Aegis BMD Test and Evaluation efforts through a requirements based input to the MDA's IMTP</li> </ul>			38.025 -	30.345 -	40.268 -

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency			Date: May 2017	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"><li>- Conducted model development and Verification and Validation (V&amp;V) in support of Commander Operational Test &amp; Evaluation Force (COMOPTEVFOR) model accreditation</li><li>- Conducted model development required for participation in exercises and wargames in support of the Warfighter</li><li>- Conducted Aegis BMD Hardware-in-the-Loop (HWIL) integration and transition to the Objective Simulation Framework (OSF) with focus on OSF Interface development for Aegis BMD 4.1 and BL 9C.2</li><li>- Conducted systems engineering for digital M&amp;S transition to OSF</li><li>- Developed advanced discrimination algorithms related to the Aegis BMD baselines in support of discrimination improvement requirements</li><li>- Demonstrated updated discrimination and developed a plan for insertion into the Aegis BMD Baselines and SM-3 variants to eliminate gaps and enable future BMDS architectures in support of Discrimination Improvements requirements</li><li>- Participated in discrimination improvement threat models specification development</li><li>- Updated element models to support the discrimination improvement program</li><li>- Planned and conducted technology trades and analysis to refine capabilities to mitigate the discrimination improvements threats</li><li>- Conducted studies to address the BMDS emergent threat</li></ul>				
<b>FY 2017 Plans:</b> Increase from FY 2016 to FY 2017 is attributed to the addition of critical experiment execution and Firing Event Analysis Team (FEAT) execution support.				
<ul style="list-style-type: none"><li>- Conduct Systems Engineering for medium fidelity Monte Carlo Analysis which will contribute to Aegis BMD capability baselines and BMDS alignment for performance requirements, design space, and threat capability assessments</li><li>- Continue to develop Performance Assessment Matrix, Threat Compliance and CEC/EME's to influence Aegis Test and Evaluation efforts through a requirements based input to the IMTP</li><li>- Develop C4I System Safety Program to address concerns with inadvertent launch and incorrect reporting of non-real ballistic missile tracks</li><li>- Develop and implement Integrated Reliability Surveillance Plan (IRSP) to improve system availability while achieving an overall reduction in cost</li><li>- Provide consolidated analysis and reporting for firing events</li><li>- Continue to maintain/upgrade the Aegis BMD M&amp;S requirements and capabilities identified to meet the needs for Tier 2 Digital OSF</li><li>- Conduct Systems Engineering tasking for model development and Verification &amp; Validation (V&amp;V) of Aegis BMD models in support of COMOPTEVFOR accreditation</li><li>- Provide Aegis BMD M&amp;S Enterprise Requirements Management and Change Control</li><li>- Continue model development required for participation in exercises and force-on-force analysis in support of the warfighter/ Combatant Commands (CCMDs)</li></ul>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>		<b>Project (Number/Name)</b> MD09 / <i>Aegis BMD</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>- Provide Aegis BMD M&amp;S support for Operational Test (OT) Runs for Record (RFR)planning</li> <li>- Provide Aegis BMD M&amp;S support for BMDS assessments, OSF/BMDS requirements development and analysis and BMD-Level V&amp;V</li> <li>- Provide Aegis BMD M&amp;S planning and integration in preparation for continuous Tier 2 Digital events</li> <li>- Execute Critical Experiments for proposed capability development efforts requiring HWIL verification. Proposed capabilities requiring HWIL include: Sensor Coordination &amp; Planning, Electro-Optical/Infrared (EO/IR) Sensor Integration, and Infrared/Radio Frequency (IR/RF) Data Fusion and Correlation</li> <li>- Continue to improve the design of critical components to alleviate limiting legacy assumptions and caveats; provide a stronger basis for subsequent design initiatives</li> <li>- Continue development of discrimination improvements to improve detection, tracking, discrimination and correlation of threats</li> <li>- Continue Near-Term discrimination algorithm insertion and testing</li> <li>- Implement threat data and modeling updates</li> <li>- Continue to develop and mature RF and IR Mid-Term discrimination algorithms, modeling and simulation, and prototype codes for AN/SPY-1 and SM-3 systems, respectively</li> <li>- Develop and mature Weapon Systems algorithm concepts that exploit AN/SPY-6 design features</li> <li>- Define modifications for implementation of LINK 16 Interface Change Proposals (ICPs) required for Mid-Term discrimination</li> </ul> <p><b>FY 2018 Plans:</b> Increase from FY 2017 to FY 2018 attributed to development of C4I capabilities to support commencement of Aegis BMD 6.x baseline, and increased element-level support for discrimination improvements and countermeasures mitigation.</p> <ul style="list-style-type: none"> <li>- Conduct Command, Control, Computer, Communications and Intelligence (C4I) systems engineering to further develop Aegis BMD requirements, and to identify and resolve BMDS interoperability issues</li> <li>- Define and coordinate development and implementation of C4I capabilities in U.S. Navy C4I programs of record to meet Aegis BMD requirements</li> <li>- Test and certify Deterministic Routing for Aegis Ashore and Aegis BMD ships to maintain interoperability with the BMDS</li> <li>- Conduct Navy and Joint Link certifications required for BMD Baseline certifications for operational deployment</li> <li>- Design, develop, test, and certify overhead satellite data sources to meet Aegis BMD fire control capabilities in support of dual path requirement in Aegis BMD 5.1</li> <li>- Manage and implement the BMDS Test Site (BTS) San Diego upgrade plan to maintain fleet representative Weapon System and C4I configurations to support testing, troubleshooting, and Fleet operations</li> <li>- Continue model development and V&amp;V in support of COMOPTEVFORBL 9.C2 M&amp;S accreditation</li> <li>- Conduct COMOPTEVFOR Operational Test Runs for the Record (OT RFR) tasks in support of BL 9.C2 VV&amp;A</li> <li>- Continue software upgrades for SM-3 6DoF integration and IAMD in support of COMOPTEVFOR VV&amp;A and OT RFRs</li> </ul>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>- Continue Aegis BMD CEC/EME tasks to support improvement of development and models of System or Element behaviors</li> <li>- Provide consolidated analysis and reporting for firing events</li> <li>- Continue Ground Test Campaign support for BMDS in support of Operational Capability Baseline (OCB) declaration</li> <li>- Continue to Conduct BMDS-level V&amp;V activities and provide results to MDA System Verification Team and the OTA in support of BMD system level accreditation for BMDS events</li> <li>- Continue model development and sustainment required for participation in exercises and force-on-force analysis in support of the warfighter/Combatant Commands (CCMDs)</li> <li>- Continue to provide BMDS M&amp;S Requirements Management and Development</li> <li>- Complete development of discrimination improvements to improve detection, tracking, discriminating, and correlation of threats</li> <li>- Complete Near-Term discrimination algorithm insertion and testing</li> <li>- Continue to develop and mature RF and IR Mid-Term discrimination algorithms, modeling and simulation, and prototype codes for AN/SPY-1 and SM-3, respectively</li> <li>- Continue to develop and mature Weapon Systems algorithm concepts and modeling and simulation updates which exploit AN/SPY-6 design features</li> <li>- Complete system modifications required for implementation of Link 16 Interface Change Proposals required for Mid-Term discrimination</li> </ul>					
<b>Title:</b> Program Operations			119.785	113.038	0.000
<b>Articles:</b>			-	-	-
<p><b>Description:</b> This accomplishment has recurring efforts. This activity funds the Government, contractor, and Federally Funded Research and Development Center (FFRDC) workforce that manage the overall Aegis Ballistic Missile Defense (BMD) program and enables the program to develop, build, and test standard missiles and the associated Aegis Weapon Systems. This project includes all operations support for the Aegis program office in Engineering, Testing, Logistics, Acquisition, Safety, Quality Assurance, Finance, Budget Formulation and Execution, Cost Estimation, and Earned Value Management in support of development activities.</p> <p><b>FY 2016 Accomplishments:</b> SEE ABOVE</p> <p><b>FY 2017 Plans:</b> Decrease from FY 2016 to FY 2017 due to a cost savings attained through consolidation of contractor tasks and efforts performed in support of the Aegis program office.</p> <p>SEE ABOVE</p> <p><b>FY 2018 Plans:</b></p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
All efforts for this accomplishment have transitioned to Budget Project, MX09 Aegis Ballistic Weapon System Integration and Operations					
SEE ABOVE					
<b>Title:</b> FY16 SM-3 Block IIA RDT&E All Up Rounds			115.948	254.654	0.000
<b>Articles:</b>			-	-	-
<b>Description:</b> Manufacture FY 2016 SM-3 Block IIA All Up Rounds (AURs) for the purposes of flight testing and delivery to the fleet as operational assets prior to an initial production decision.					
Recurring Accomplishment: Deliver SM-3 Block IIA AURs					
<b>FY 2016 Accomplishments:</b> Award of the follow-on full scope of effort to produce SM-3 Block IIA missiles in support of flight testing and delivery to fleet for initial deployment in FY 2018					
- SM-3 Block IIA AURs for use in support of flight test events as reflected in the IMTP, and initial deployment in support of EPAA Phase III. SM-3 Block IIA AURs validate the EMRL 3 criteria for an Initial Production Decision in FY 2018					
Funding for DoD Civilian and Contractor support moved to Project MD09, Program Operations Funding for Aegis Systems Engineering efforts moved to Project MD09, Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion					
<b>FY 2017 Plans:</b> Increase in FY 2017 is attributed to the following:					
- Incremental funding increased from FY2016 levels to match manufacturing expenditure profile for seventeen FY16 contracted SM-3 Block IIA AURs, funding requirements aligned with next FY2017 increment of component, sub-section and section manufacturing and delivery schedules to support AUR deliveries beginning FY2018					
- Realignment of funding from IIA Development to support for manufacturing, assembly, test, and missile integration issues and assessing vendor non-conformances, process changes, variances, change notices, drawing changes, deviations and compliance actions					



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
- Continue funding for quantity 17 SM-3 Block IIA AURs (scheduled delivery FY 2018 through FY 2020) for use in flight test events as reflected in the IMTP, and initial deployment of EPAA Phase III. SM-3 Block IIA AURs validate the Engineering Manufacturing Readiness Level 3 criteria for an Initial Production Decision in 4Q FY 2018					
<b>FY 2018 Plans:</b> All efforts for this accomplishment have transitioned to Budget Project, MG09 Aegis BMD SM-3 Development Articles					
<b>Title:</b> Modeling & Simulation Objective Simulation Framework			40.146	40.084	37.141
<b>Articles:</b>			-	-	-
<b>Description:</b> This effort develops, maintains and deploys the framework hardware and software for use at element laboratories and Combatant Command (CCMD) locations to support IMTP events, BMDS capability delivery assessments, Warfighter training, exercises, and wargames. Recurring Accomplishments:  - Develop and implement Objective Simulation Framework (OSF) upgrades to incorporate advanced tracking, discrimination, engagement and associated upper tier debris mitigation capabilities, as well as other requirements and capabilities to meet MDA's evolving M&S Enterprise needs. - Sustain and enhance framework products to maintain capabilities to support stakeholders. - Develop plans, procedures and documentation for scheduled events including Wargames and Combatant Command Exercises and the Distributed, Focused and Integrated HWIL Events as presented in the IMTP. Provide event architecture integration and checkout of Wargames for these same IMTP scheduled events. - Provide the ground test architecture integration expertise to meet the testing requirements of the IMTP. Support delivery of integrated architectures for test across all test venues using the BMDS test framework to integrate distributed architectures in support of BMDS. - Develop, maintain, test, field, and operate model representations for use in events and other MDA M&S stakeholder application areas. Deploy hardware and software updates to distributed sites. Perform regular maintenance and critical repairs of hardware and software. - Support MDA's Experimental End-to-end Digital Integrated System-level Simulation (X-EDISS) requirements, referred to Tier 2 Digital in previous reports, requirements, including hardware and software, data storage and transmission, and verification tools. - Control and maintain the M&S Integration and Development Laboratories for Element M&S. Maintain venue for stakeholders to conduct early integration efforts and identification of issues prior to event architecture integration to support system development. - Deploy System Interface Units (SIUs) for BMDS testing - materials, licenses, SIU fleet purchasing. Deploy SIUs and components to maintain and sustain SIU fleet including cybersecurity; enables Developmental and Operational testing with full BMDS as required in IMTP.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>		<b>Project (Number/Name)</b> MD09 / <i>Aegis BMD</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<p>- Continue maintenance of the Single Stimulation Framework in the required venues until the transition of the Objective Simulation Framework into the venues completes.</p> <p>Note: This accomplishment was renamed from M&amp;S HWIL Framework, Simulations, Models to reduce confusion between similarly named accomplishments.</p> <p><b>FY 2016 Accomplishments:</b> Conducted activities listed in the Description section (SEE ABOVE).</p> <p><b>FY 2017 Plans:</b> Conduct activities listed in the Description section (SEE ABOVE).</p> <p><b>FY 2018 Plans:</b> Conduct activities listed in the Description section (SEE ABOVE).</p>					
<p><b>Title:</b> Systems Engineering &amp; Integration</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Perform requirements development, engineering analysis, capability integration, and performance verification for Aegis BMD development and BMDS integration, including Aegis BMD compliance with the BMDS Specification, BMDS Description Document, and Master Integration Plan (MIP).</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> <li>- Conduct system level performance analyses to support ongoing BMDS Architecture and Systems Engineering efforts</li> <li>- Perform top-down system level engineering analysis, capability integration, and performance verification for Aegis BMD development and BMDS integration, including Aegis BMD compliance with the BMD System Specification, BMD System Description Document, and Master Integration Plan (MIP)</li> <li>- Identify architecture alternatives that improve the BMD System's performance and are complementary to and interoperable with NATO systems and theaters around the world</li> <li>- Define BMDS technical content expectations and develop system requirements, to include integration of new capabilities, such as the Navy's Air and Missile Defense Radar (AMDR)</li> <li>- Develop functional performance, interface, and design suitability requirements in collaboration with Aegis BMD engineers to ensure correct flow-down and allocation of BMD System-level requirements to Aegis BMD</li> <li>- Respond to Warfighter, Combatant Command and other requests for analyses and requests for information; provide analytical support for real-world events</li> </ul>			19.109 -	19.405 -	18.530 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>- Conduct non-advocate assessments of BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness (including Theater/Regional BMD)</li> <li>- Conduct extensive analysis of data collected in BMD test events to evaluate BMD System operations and performance.</li> </ul> <p><b>FY 2016 Accomplishments:</b> Conducted activities listed in the Description section (SEE ABOVE).</p> <p><b>FY 2017 Plans:</b> Conduct activities listed in the Description section (SEE ABOVE).</p> <p><b>FY 2018 Plans:</b> Conduct activities listed in the Description section (SEE ABOVE).</p>					
<p><b>Title:</b> M&amp;S BMDS Simulations &amp; Tools</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This effort includes: development and sustainment of digital products and the architecture framework, and delivery/ maintenance of infrastructure for BMDS performance assessments.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> <li>- Integrate, test, and verify the M&amp;S enterprise supporting BMDS testing, assessment, exercises, and wargaming, including testing infrastructure. Guide and facilitate integration testing of MDA's M&amp;S frameworks and core truth models, and all M&amp;S components into virtual representations of the BMDS that are credible, affordable, and provide decision makers with the data needed</li> <li>- Integrate, test, functionally qualify, and deliver M&amp;S tools and complex test architectures to provide system test capabilities to support MDA IMTP based test events, wargames, and exercises</li> <li>- Continue the transition of real-time digital simulation capability to the OSF to support Intended Uses</li> <li>- Provide HWIL/M&amp;S Benchmarking/Integration documentation and coordination</li> <li>- Conduct M&amp;S system integration and verification to support M&amp;S system architecture development. Provide developmental integration testing to support M&amp;S system architecture integration</li> </ul> <p>Note: this accomplishment was renamed from M&amp;S Digital Framework, Simulation, Models to reduce confusion between similarly named accomplishments.</p> <p><b>FY 2016 Accomplishments:</b> Conducted activities listed in the Description section (SEE ABOVE).</p> <p><b>FY 2017 Plans:</b></p>			4.989 -	4.978 -	5.227 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MD09 / Aegis BMD	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
Conduct activities listed in the Description section (SEE ABOVE).					
<b>FY 2018 Plans:</b> Conduct activities listed in the Description section (SEE ABOVE).					
<b>Title:</b> BMDS Verification, Validation & Assessment (VV&A)			20.724	21.362	20.219
<b>Articles:</b>			-	-	-
<b>Description:</b> This activity funds BMD System Assessment and Verification, Validation, and Accreditation (VV&A) activities to support BMDS Operational Capacity Baseline (OCB) delivery decisions and Technical Capability Declarations (TCDs), and anchor System modeling and simulation.					
Recurring Accomplishments:					
<ul style="list-style-type: none"> <li>- Verify BMDS performance, and produce BMDS verification status reports</li> <li>- Conduct extensive analysis of data collected in BMDS ground and flight test events, instrumental to understanding BMD System operations and performance and anchoring models and simulations</li> <li>- Identify mitigation approaches for BMDS performance issues uncovered during system level analysis and assessment</li> <li>- Maintain M&amp;S Verification, Validation and Accreditation (VV&amp;A) database, and verification data for BMD System Specification Change Notices</li> <li>- Develop, maintain, and update the M&amp;S VV&amp;A tool kit</li> <li>- Provide recommendations for improving assessment confidence, including M&amp;S and testing issue resolutions</li> <li>- Conduct verification and validation (V&amp;V) in support of MDA BMD System level accreditation process in support of BMDS Ground Test and performance assessment events</li> <li>- Conduct specified BMD System post-flight reconstructions, element post-flight reconstructions, and pre-mission testing events so as to optimize the body of evidence and analysis supporting system-level BMDS accreditation.</li> </ul>					
<b>FY 2016 Accomplishments:</b> Conducted activities listed in the Description section (SEE ABOVE).					
<b>FY 2017 Plans:</b> Conduct activities listed in the Description section (SEE ABOVE).					
<b>FY 2018 Plans:</b> Conduct activities listed in the Description section (SEE ABOVE).					
<b>Accomplishments/Planned Programs Subtotals</b>			686.536	846.028	292.063

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency								<b>Date:</b> May 2017			
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD				<b>Project (Number/Name)</b> MD09 / Aegis BMD			

**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0604878C: <i>Aegis BMD Test</i>	78.468	95.012	134.468	-	134.468	73.059	82.570	113.856	97.660	Continuing	Continuing
• 0604880C: <i>Land Based SM-3 (LBSM3)</i>	29.288	43.293	30.486	-	30.486	31.816	33.024	31.707	30.924	Continuing	Continuing
• 0604881C: <i>AEGIS SM-3 Block IIA Co-Development</i>	165.456	106.038	9.739	-	9.739	0.000	0.000	0.000	0.000	0	281.233

**Remarks**

**D. Acquisition Strategy**

The Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Aegis BMD program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the SM-3 and the Aegis BMD Weapon System, respectively.

The M&S acquisition strategy utilizes full and open competition to develop, acquire and deliver the integrated architectures/frameworks, as well as develop and deliver models of Aegis systems. The Digital and HWIL product centers integrate the suite of M&S into a composite simulation capability, all based on an open architecture. M&S achieves this end-state via close collaboration between its integrating contractor teams (Digital and HWIL) and those of the Aegis BMD prime contractors, with additional technical standards and engineering oversight provided by Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers (UARC).

**E. Performance Metrics**

AEGIS BMD utilizes Award Fee and Incentive-based contracts to ensure project completes on time

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev -MD09- Aegis Techrep	MIPR	AEGIS Techrep : Moorestown, NJ	2.114	0.000		1.324	Nov 2016	1.422	Nov 2017	-		1.422	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - D	MIPR	MDA : VA	20.309	5.342	Nov 2015	2.122	Jul 2017	2.608	Nov 2017	-		2.608	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - Dahlgren	MIPR	NSWC/DD : DAHLGREN, VA	131.188	9.617	Nov 2015	1.822	Nov 2016	1.956	Nov 2017	-		1.956	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - Lockheed Martin	SS/CPIF	LOCKHEED MARTIN : MOORESTOWN, NJ	753.701	6.415	Nov 2015	22.996	Nov 2016	22.085	Nov 2017	-		22.085	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. -MD09- BMD 4.0 Dev- No longer funded in the FYDP	Various	Various : Various	37.778	5.324		0.000		0.000		-		0.000	0	43.102	0
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09- No longer funding in the FYDP	Various	Various, : Various	921.251	17.766	Nov 2015	0.000		0.000		-		0.000	0	939.017	0
Aegis Ballistic Missile Defense (BMD) 5.x Development - 6.x - D	MIPR	MDA : Ft. Belvoir, VA	0.000	0.000		0.000		2.708	Nov 2017	-		2.708	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323680	MIPR	NSWC/DD : DAHLGREN, VA	39.308	7.237	Nov 2015	9.863	Nov 2016	12.270	Nov 2017	-		12.270	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323684	MIPR	NSWC/PHD : PT HUENEME, CA	2.813	5.060	Nov 2015	4.858	Nov 2016	1.230	Nov 2017	-		1.230	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323686	MIPR	JHU/APL/MD : COLUMBIA, MD	40.129	6.169	Nov 2015	5.808	Nov 2016	3.720	Nov 2017	-		3.720	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323689	SS/CPAF	LOCKHEED MARTIN : MOORESTOWN, NJ	457.632	133.685	Nov 2015	68.130	Nov 2016	40.632	Nov 2017	-		40.632	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - AW	MIPR	Aegis Tech Rep : Moorestown, NJ	2.049	0.000		3.705	Nov 2016	1.560	Nov 2017	-		1.560	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - Various	MIPR	Various : MA, MD, VA, NJ	68.745	1.780	Nov 2015	0.000		1.280	Nov 2017	-		1.280	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09- No longer funded in the FYDP	Various	Various : Various	106.069	23.425	Nov 2015	0.000		0.000		-		0.000	0	129.494	0
Aegis Ballistic Missile Defense 6.x Development - Hanscom AFB - MIT/LL - TD	MIPR	Hanscom AFB - MIT/LL : MA	0.000	0.975		0.406		1.679	Nov 2017	-		1.679	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense 6.x Development - JHU/APL	SS/CPFF	JHU/APL : MD	0.000	1.775		7.241	Nov 2016	9.054	Nov 2017	-		9.054	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense 6.x Development - Lockheed Martin	C/CPFF	Lockheed Martin : NJ	0.000	5.836		12.260	Nov 2016	51.753	Nov 2017	-		51.753	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense 6.x Development - MD09 - DD	MIPR	NSWC/DD : Dahlgren, VA	0.000	2.225		3.971	Nov 2016	4.500	Nov 2017	-		4.500	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense 6.x Development - NAVSEA	MIPR	NAVSEA : Sudbury, MA	0.000	0.000		0.000		2.600	Nov 2017	-		2.600	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense 6.x Development - NSWC DD-TD	MIPR	NSWC/DD : VA	0.000	0.894		2.427	Jul 2017	1.733	Nov 2017	-		1.733	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense 6.x Development - Raytheon	SS/CPIF	Raytheon : Tucson, AZ	0.000	1.375		0.000		6.508	Nov 2017	-		6.508	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense 6.x Development - Tech Rep	MIPR	Aegis TechRep : Moorestown, NJ	0.000	0.045		0.000		1.380	Nov 2017	-		1.380	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - Standard Missile-3 (SM-3) Block IB Development-MD09- Corona	MIPR	NSWC Corona : Corona, CA	1.349	0.000		0.375	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - Standard Missile-3 (SM-3) Block IB Development-MD09-20117142332259	MIPR	NSWC/PHD : Port Huememe, CA	14.082	0.000		0.335	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - Standard Missile-3 (SM-3) Block IB Development-MD09	SS/CPAF	Raytheon : Tucson	1,007.907	14.619	Nov 2015	0.972	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - Standard Missile-3 (SM-3) Block IB Development-MD09- No longer funding in the FYDP	Various	Various : Various	127.066	0.000		0.276	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - CA,VA, MD	MIPR	Various : CA, VA, MD	0.191	0.000		3.600	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing



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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA AFFORDABILITY DEVELOPMENT- No longer funding in the FYDP	SS/CPIF	Raytheon : Tucson, AZ	0.000	12.100	Nov 2015	25.424	Nov 2016	0.000		-		0.000	0	37.524	0
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION	SS/CPIF	Raytheon : Tucson, AZ	60.992	42.900	Nov 2015	159.247	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION - APL	MIPR	JHU/APL : Laurel, MD	0.225	13.400	Nov 2015	14.300	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION - DD	MIPR	NSWC DD : Dahlgren, VA	0.401	9.846	Nov 2015	10.000	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - NSWC Corona	MIPR	NSWC Corona : Corona, CA	0.010	0.000		0.400	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - NSWC/Crane	MIPR	NSWC/Crane : IN	0.000	0.000		0.300	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD APL	MIPR	JHU/APL : Columbia, MD	3.336	6.126	Nov 2015	5.311	Nov 2016	7.793	Nov 2017	-		7.793	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD LM	C/CPFF	Lockheed Martin : Moorestown, NJ	3.375	5.447	Nov 2015	4.441	Nov 2016	7.922	Nov 2017	-		7.922	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD MIT	MIPR	Hanscom AFB - MIT/LL : Lexington, MA	3.085	2.744	Nov 2015	1.982	Dec 2016	3.169	Nov 2017	-		3.169	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD MITRE	MIPR	CECOM - MITRE : Dahlgren, VA	0.000	0.626	Nov 2015	0.338	Dec 2016	1.228	Nov 2017	-		1.228	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD NSWCCD	MIPR	NSWC DD : Dahlgren, VA	1.390	7.087	Nov 2015	7.236	Feb 2017	7.753	Nov 2017	-		7.753	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 Raytheon	SS/CPAF	Raytheon : AZ	0.857	0.730		0.000		0.825	Apr 2018	-		0.825	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09-Technology Design and Insertion-TD No longer funding in the FYDP	Various	Various, : Various	0.000	2.500	Nov 2015	9.232	Feb 2017	0.000		-		0.000	0	11.732	0
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - SPAWAR	MIPR	SPAWAR : San Diego, CA	0.000	0.322		0.000		5.255	Dec 2017	-		5.255	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Technology Design and Insertion - Discrimination	MIPR	Various - MDA : AL,VA	0.000	9.972	Nov 2015	0.000		6.000	Nov 2017	-		6.000	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Various - MDA	MIPR	Various - MDA : AL,VA,CA	0.000	2.471		1.805	Jan 2017	0.323	Nov 2017	-		0.323	Continuing	Continuing	Continuing
FY16 SM-3 Block IIA RDT&E All Up Rounds	MIPR	MIT/LL : MA	0.000	0.000		0.500	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
- FY 16 SM-3 Block IIA RDT&E All Up Rounds-MIT/LL															
FY16 SM-3 Block IIA RDT&E All Up Rounds - NSWC/DD	MIPR	NSWC/DD : Dahlgren, VA	0.000	0.000		1.500	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
FY16 SM-3 Block IIA RDT&E All Up Rounds - SM-3 MANUFACTURING - MD09	SS/CPAF	Raytheon : Tucson, AZ	355.473	115.948	Dec 2015	251.154	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
FY16 SM-3 Block IIA RDT&E All Up Rounds - Various	MIPR	Various : CA, VA, MD	0.000	0.000		1.500	Nov 2016	0.000		-		0.000	0	1.500	0
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering	Various	MDA : AL, VA	4.569	3.750	Nov 2015	4.269	Nov 2016	1.763	Nov 2017	-		1.763	Continuing	Continuing	Continuing
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - CSS Support	C/CPFF	MiDAESS / TEAMS : AL, CO	13.510	2.588	Nov 2015	0.000		1.095	Nov 2017	-		1.095	Continuing	Continuing	Continuing
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - Engineering Support	C/CPAF	Northrop Grumman : CO	12.944	4.700	Nov 2015	6.222	Nov 2016	8.613	Nov 2017	-		8.613	Continuing	Continuing	Continuing
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - Integration	MIPR	AMRDEC : AL	12.108	4.347	Nov 2015	4.043	Nov 2016	4.318	Nov 2017	-		4.318	Continuing	Continuing	Continuing
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - Prime	C/CPFF	Teledyne Brown Engineering : AL, CO	66.649	24.761	Nov 2015	25.550	Nov 2016	21.352	Nov 2017	-		21.352	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering & Integration - Systems Engineering	Various	MDA Various : VA, AL	48.720	6.852	Nov 2015	6.787	Nov 2016	3.620	Oct 2017	-		3.620	Continuing	Continuing	Continuing
Systems Engineering & Integration - Systems Engineering - CSS	C/CPFF	MiDAESS / TEAMS : VA	13.003	1.224	Nov 2015	1.533	Nov 2016	0.945	Nov 2017	-		0.945	Continuing	Continuing	Continuing
Systems Engineering & Integration - Systems Engineering - Industry	C/CPAF	Boeing : VA	26.907	11.033	Nov 2015	11.085	Nov 2016	13.965	Nov 2017	-		13.965	Continuing	Continuing	Continuing
M&S BMDS Simulations & Tools - Sims & Tools	C/CPFF	Teledyne Brown Engineering : AL, CO	0.000	0.000		0.950	Nov 2016	1.243	Nov 2017	-		1.243	Continuing	Continuing	Continuing
M&S BMDS Simulations & Tools - Sims & Tools - Industry	C/CPAF	Northrop Grumman : CO	24.053	4.989	Nov 2015	4.028	Nov 2016	3.984	Nov 2017	-		3.984	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment	Various	MDA Various : AL, VA	0.000	0.000		0.000		0.709	Nov 2017	-		0.709	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - CSS Support	C/CPFF	MiDAESS / TEAMS : AL	4.720	3.852	Nov 2015	3.960	Nov 2016	2.210	Nov 2017	-		2.210	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - CSS Support (2)-No longer funding in the FYDP	C/CPFF	Sparta : AL	0.505	0.525	Nov 2015	0.555	Nov 2016	0.000		-		0.000	0	1.585	0
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - Industry	C/CPAF	Boeing : AL	1.075	6.914	Nov 2015	6.927	Nov 2016	6.165	Nov 2017	-		6.165	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment	MIPR	MITRE : VA	3.632	1.476	Nov 2015	1.539	Nov 2016	1.174	Nov 2017	-		1.174	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
(VV&A) - Verification & Assessment - Labs															
BMDs Verification, Validation & Assessment (VV&A) - Verification & Assessment - OGA	MIPR	AMRDEC : AL	5.095	7.957	Nov 2015	7.338	Nov 2016	7.432	Nov 2017	-		7.432	Continuing	Continuing	Continuing
BMDs Verification, Validation & Assessment (VV&A) - Verification & Assessment - UARC	MIPR	GTRI : GA, AL	1.119	0.000		1.043	Nov 2016	1.100	Nov 2017	-		1.100	Continuing	Continuing	Continuing
BMDs Verification, Validation & Assessment (VV&A) - Verification & Assessment - UARC2	MIPR	JHU/APL : AL, VA	0.000	0.000		0.000		1.429	Nov 2017	-		1.429	Continuing	Continuing	Continuing
Subtotal			4,401.434	566.751		732.990		292.063		-		292.063	-	-	-
Remarks N/A															
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - MD09 - Civ Sal	MIPR	MDA : Arlington, VA	25.282	35.328	Oct 2015	34.746	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - DD PM	MIPR	NSWC DD : Dahlgren, VA	7.017	7.632	Nov 2015	8.792	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - IT	MIPR	MDA : Arlington, VA	0.181	0.519	Nov 2015	0.500	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - MDA Travel	MIPR	MDA : Arlington, VA	1.610	2.065	Oct 2015	3.100	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - MIDAESS	MIPR	MDA : Arlington, VA	43.352	54.219	Oct 2015	47.523	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency** **Date:** May 2017

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD	<b>Project (Number/Name)</b> MD09 / Aegis BMD
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Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - MD09 - NAVSEA Civ Sal	MIPR	NAVSEA : Washington, DC	12.825	13.856	Oct 2015	12.503	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA RB Sal	MIPR	NAVSEA : Washington, DC	1.161	2.109	Oct 2015	2.132	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA Training, Various	MIPR	NAVSEA : Washington, DC	1.542	1.134	Oct 2015	0.771	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA Travel	MIPR	NAVSEA : Washington, DC	1.027	1.056	Oct 2015	1.056	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09 - Security	MIPR	Various : VA	1.165	1.603	Nov 2015	1.651	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - MD09-Program Operations- No longer funding in the FYDP	MIPR	Various : VA	13.730	0.264		0.264		0.000		-		0.000	0	14.258	0
<b>Subtotal</b>			108.892	119.785		113.038		0.000		-		0.000	-	-	-

**Remarks**

Remarks  
 \*Increase from FY 2017 to FY 2018 (Lockheed Martin, NJ) due to detailed design of BMD 6.0 in preparation for CDR which will finalize the Baseline Program Performance requirements and Commencement of the BMD 6.1

Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

**Remarks**

N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Missile Defense Agency</b>												<b>Date: May 2017</b>		
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD				<b>Project (Number/Name)</b> MD09 / Aegis BMD				

  

Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

  

<b>Remarks</b> N/A															
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	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	4,510.326	686.536		846.028		292.063		-		292.063	-	-	-

  

<b>Remarks</b> Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, MIPRs, and civilian salaries on the R-3.													
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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency																Date: May 2017																							
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)																							
0400 / 4								PE 0603892C / AEGIS BMD								MD09 / Aegis BMD																							
Significant Event Complete ▲				Significant Event Planned △				Milestone Decision Complete ★				Milestone Decision Planned ☆				Element Test Complete ◆				Element Test Planned ◇				System Level Test Complete ●				System Level Test Planned ○				Complete Activity ◆				Planned Activity ◇			
								FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022							
BMD 6.x SRR											◇																												
BL 5.3.x/BMD 4.x SDR/PDR													◇																										
BMD 5.1 Demo														△																									
BMD 6.x SFR														◇																									
BMD 5.1 Development								◇	◇	◇	◇	◇	◇	◇	◇																								
BMD 5.0 Ship Installations								◇	◇	◇	◇	◇	◇	◇	◇																								
BL 5.3.x/BMD 4.x CDR																◇																							
BMD 6.0 PDR																◇																							
BMD 5.1 Certification																	△																						
BMD 6.1 SRR																	◇																						
BL 5.3.x/BMD 4.x EA																			◇																				
BMD 6.0 CDR																				◇																			
BMD 6.1 SFR																					◇																		
BL 5.3.x/BMD 4.x Certification																					★																		
BMD 6.1 PDR																									◇														
BMD 6.0 Demo																											△												
BMD 6.0 Certification																														★									
BMD 6.1 CDR																														◇									



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>	<b>Project (Number/Name)</b> MD09 / <i>Aegis BMD</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BMD 6.x SRR	4	2016	4	2016
BL 5.3.x/BMD 4.x SDR/PDR	2	2017	2	2017
BMD 5.1 Demo	3	2017	3	2017
BMD 6.x SFR	3	2017	3	2017
BMD 5.1 Development	1	2016	4	2017
BMD 5.0 Ship Installations	1	2016	4	2017
BL 5.3.x/BMD 4.x CDR	1	2018	1	2018
BMD 6.0 PDR	1	2018	1	2018
BMD 5.1 Certification	3	2018	3	2018
BMD 6.1 SRR	3	2018	3	2018
BL 5.3.x/BMD 4.x EA	1	2019	1	2019
BMD 6.0 CDR	2	2019	2	2019
BMD 6.1 SFR	3	2019	3	2019
BL 5.3.x/BMD 4.x Certification	4	2019	4	2019
BMD 6.1 PDR	1	2021	1	2021
BMD 6.0 Demo	2	2021	2	2021
BMD 6.0 Certification	2	2022	2	2022
BMD 6.1 CDR	2	2022	2	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MG09 / Aegis BMD SM-3 Development Articles			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MG09: Aegis BMD SM-3 Development Articles	-	0.000	0.000	253.276	-	253.276	166.129	73.523	18.291	0.000	0	511.219
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Reflects transfer of SM-3 Development Articles efforts from Project MD09, Aegis BMD beginning in FY 2018

**A. Mission Description and Budget Item Justification**

This project supports Aegis BMD purchase of Development Articles to use as test articles, and initial deployment in support of EPAA Phase III. Includes Manufacturing of SM-3 Block IIA All Up Round (AUR) for the purposes of flight testing and delivery to the fleet as operational assets, and to ensure the maturation of SM-3 Block IIA manufacturing process.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> FY16 SM-3 Block IIA RDT&E All Up Rounds	0.000	0.000	212.029
<b>Articles:</b>	-	-	-
<b>Description:</b> Manufacture FY 2016 SM-3 Block IIA All Up Rounds (AURs) for the purposes of flight testing and delivery to the fleet as operational assets prior to an initial production decision in support of EPAA Phase III.			
Recurring Accomplishment: Deliver SM-3 Block IIA AURs			
<b>FY 2016 Accomplishments:</b> N/A			
<b>FY 2017 Plans:</b> N/A			
<b>FY 2018 Plans:</b> FY16 SM-3 Block IIA RDT&E All Up Rounds efforts transferred from Project MD09, Aegis BMD. Decrease from FY 2017 to FY 2018 to match manufacturing schedule for incremental phasing of FY 2016 All-Up-Rounds. Continue funding for quantity 17 SM-3 Block IIA AURs (delivered FY 2018 through FY 2020) for use in flight test as reflected in the IMTP, and initial deployment of			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency		<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD	<b>Project (Number/Name)</b> MG09 / Aegis BMD SM-3 Development Articles	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>
EPAA Phase III. SM-3 Block IIA AURs validate the Engineering Manufacturing Readiness Level 3 criteria for an Initial Production Decision scheduled 4Q FY 2018.			
<b>Title:</b> FY18 SM-3 Block IIA RDT&E All Up Rounds		0.000	0.000
<b>Articles:</b>		-	-
<b>Description:</b> Purchase of FY 2018 SM-3 Block IIA AURs for delivery to the fleet as operational assets			
<b>FY 2016 Accomplishments:</b> N/A			
<b>FY 2017 Plans:</b> N/A			
<b>FY 2018 Plans:</b> In PB-2017 this requirement was captured in Aegis BMD MD09 Procurement account			
<ul style="list-style-type: none"> <li>- Incremental funding of six SM-3 Block IIA AURs for flight testing and delivery to the fleet as operational assets</li> <li>- Ensure the maturation of SM-3 Block IIA manufacturing process and mitigate impacts of a production gap</li> <li>- All Up Rounds utilized to achieve Engineering Manufacturing Readiness Level 4</li> </ul>			
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> N/A			
<b>E. Performance Metrics</b> N/A			

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MG09 / Aegis BMD SM-3 Development Articles					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FY16 SM-3 Block IIA RDT&E All Up Rounds - FY16 SM-3 Block IIA RDT&E All Up Rounds - IWS	MIPR	NAVSEA IWS : Washington DC	0.000	0.000		0.000		7.523	Nov 2017	-		7.523	Continuing	Continuing	Continuing
FY16 SM-3 Block IIA RDT&E All Up Rounds - FY16 SM-3 Block IIA RDT&E All Up Rounds - NSWC/DD	MIPR	NSWC/DD : Dahlgren, VA	0.000	0.000		0.000		2.000	Nov 2017	-		2.000	Continuing	Continuing	Continuing
FY16 SM-3 Block IIA RDT&E All Up Rounds - FY16 SM-3 Block IIA RDT&E All Up Rounds - SM-3 MANUFACTURING - MG09	SS/CPAF	Raytheon : Tuscon, AZ	0.000	0.000		0.000		202.506	Nov 2017	-		202.506	Continuing	Continuing	Continuing
FY18 SM-3 Block IIA RDT&E All Up Rounds - FY18 SM-3 Block IIA RDT&E All Up Rounds - FY18 SM-3 Manufacturing	MIPR	NAVSEA IWS : Washington DC	0.000	0.000		0.000		5.534	Nov 2017	-		5.534	Continuing	Continuing	Continuing
FY18 SM-3 Block IIA RDT&E All Up Rounds - FY18 SM-3 Block IIA RDT&E All Up Rounds - Raytheon	SS/CPAF	Raytheon : Tuscon, AZ	0.000	0.000		0.000		35.713	Jun 2018	-		35.713	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		253.276		-		253.276	-	-	-
Remarks N/A															
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		0.000		253.276		-		253.276	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency							Date: May 2017			
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD			Project (Number/Name) MG09 / Aegis BMD SM-3 Development Articles			
	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks N/A										

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency

Date: May 2017

Appropriation/Budget Activity  
0400 / 4

R-1 Program Element (Number/Name)  
PE 0603892C / AEGIS BMD

Project (Number/Name)  
MG09 / Aegis BMD SM-3 Development Articles

Significant Event Complete ▲  
Significant Event Planned △

Milestone Decision Complete ★  
Milestone Decision Planned ☆

Element Test Complete ◆  
Element Test Planned ◇

System Level Test Complete ●  
System Level Test Planned ○

Complete Activity ◆  
Planned Activity ◇

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
FY16 SM-3 Block IIA AUR-first round delivery													◇															
FY16 SM-3 Block IIA AUR EPAA Phase III Declaration														◇														

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>	<b>Project (Number/Name)</b> MG09 / <i>Aegis BMD SM-3 Development Articles</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FY16 SM-3 Block IIA AUR-first round delivery	3	2018	3	2018
FY16 SM-3 Block IIA AUR EPAA Phase III Declaration	1	2019	1	2019

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MM09 / Aegis BMD SM-3 Development			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MM09: Aegis BMD SM-3 Development	-	0.000	0.000	93.414	-	93.414	121.268	125.305	74.922	111.278	0	526.187
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Reflects transfer of SM-3 Development efforts from Project MD09, Aegis BMD in FY 2018

**A. Mission Description and Budget Item Justification**

Provides development of SM-3 Missiles, Upgrade Modifications, and Integration into the Aegis Weapon System. The SM-3 Block IB improves Aegis BMD's ability to expand the BMD battlespace, engage longer range, more sophisticated ballistic missiles that may deploy countermeasures and launch in larger raid sizes. The SM-3 Block IB Kinetic Warhead's (KW) two color infra-red (IR) seeker and advanced signal processor provides a real-time discrimination and characterization capability while improving sensitivity for longer range targets and performance against more sophisticated threats. Additionally, the new Throttleable Divert and Attitude Control System (TDACS) KW divert engine has been upgraded over the SM-3 Block IA to provide a more flexible divert in order to maneuver the KW to intercept.

The SM-3 Block IIA consists of an upgrade to a 21-inch diameter SM-3 missile and expands beyond the SM-3 Block IB battlespace to counter Intermediate Range Ballistic Missile (IRBM). SM-3 Block IIA provides an increased kinematic envelope through improved infa-red (IR) discrimination and divert capability that provide performance against the EPAA phase III expanded threat set. When combined with Aegis BMD 5.1 weapon system modifications, the SM-3 Block IIA will provide Engage on Remote (EoR) capability, which allows the use of remote off board sensor information to launch and guide the SM-3 Block IIA to final intercept. Aegis BMD 5.1 EoR capability with SM-3 Block IIA also frees up Radar resources and increases the number and type of threats to be engaged simultaneously over previous baselines.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> Standard Missile-3 (SM-3) Block IB Development	0.000	0.000	21.148
<b>Articles:</b>	-	-	-
<b>Description:</b> This effort develops the SM-3 Block IB missile, which improves on the SM-3 Block IA performance and enables engagement of more sophisticated ballistic missiles and larger raid sizes.			
SM-3 Block IB Modernization will provide the following upgrades:			
- Upgraded SM-3 KW Common Avionics Package will provide improved producibility and reduced cost resulting from utilization of common components between SM-3 Block IIA and the Redesigned Kill Vehicle (RKV). SM-3 Block IB Common Components will be extendable to support different form/fit in circuit card assemblies across SM-3 Block IB, SM-3 Block IIA, and RKV and will mitigate SM-3 Block IB hardware availability issues.			



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MM09 / Aegis BMD SM-3 Development	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<p>- Upgraded SM-3 Block IB Guidance Section (GS) will resolve Computer Processing Unit 3 and Plate 3A hardware availability issues, enable use of 5.1/IIA Target Object Map (TOM) and similar software to SM-3 Block IIA Mission Computer; and enable additional capability against complex threats.</p> <p><b>FY 2016 Accomplishments:</b> N/A</p> <p><b>FY 2017 Plans:</b> N/A</p> <p><b>FY 2018 Plans:</b> Increase from FY 2017 to FY 2018 is due to SM-3 Block IB Modernization efforts to develop capabilities against future threats, resolve identified hardware availability issues and increase commonality within the SM-3 Missile family.</p> <p>SM-3 Block IB Modernization consists of two primary upgrade packages as follows:</p> <ul style="list-style-type: none"> <li>- Initiate development of the upgraded SM-3 KW Common Avionics Package</li> <li>- Initiate development of the upgraded SM-3 Block IB Guidance Section (GS)</li> </ul>					
<p><b>Title:</b> Standard Missile-3 (SM-3) Block IIA Development</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The SM-3 Block IIA is required to meet EPAA Phase III. It will increase the area that can be defended by Aegis BMD, increase the probability of kill against a larger threat set, and leverage enhanced capability provided by BMDS sensor upgrades.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> <li>- Conduct SM-3 Block IIA software update to support engagements against additional complex threats identified during Aegis BMD 5.1 design process conducted after missile Critical Design Review (CDR)</li> <li>- Conduct End to End Distributed Development System (ETEDDS) integration testing; and flight test support</li> <li>- Continue implementation of SM-3 Block IIA cost reduction initiatives to support meeting cost goals to reduce the current estimated Average Unit Production Price (AUPP)</li> </ul> <p><b>FY 2016 Accomplishments:</b> N/A</p> <p><b>FY 2017 Plans:</b></p>			0.000 -	0.000 -	72.266 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency		<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD	<b>Project (Number/Name)</b> MM09 / Aegis BMD SM-3 Development	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>
N/A  <b>FY 2018 Plans:</b> Decrease from FY 2017 to FY 2018 due to life cycle progression as program begins shift from development phase to initial production  - Continue transition of Kinetic Warhead (KW) hardware commonality effort (from design to material purchases) to system integration testing in order to demonstrate technology readiness level 7 - Conduct Engineering Manufacture Readiness Level (EMRL) 3 compliance to support life cycle progression - Support execution of robust Flight Test Mission Campaign Series to ensure six successful SM-3 Block IIA Intercepts			
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			
<b>E. Performance Metrics</b>			
N/A			

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MM09 / Aegis BMD SM-3 Development					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Standard Missile-3 (SM-3) Block IB Development - Standard Missile-3 (SM-3) Block IB Development - MD09	SS/CPAF	Raytheon : Tuscon, AZ	0.000	0.000		0.000		17.146	Jan 2018	-		17.146	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142332259	MIPR	NSWC/PHD : Port Hueneme, CA	0.000	0.000		0.000		1.934	Nov 2017	-		1.934	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - Standard Missile-3 (SM-3) Block IB Development - MD09 - Corona	MIPR	NSWC Corona : Corona, CA	0.000	0.000		0.000		2.068	Nov 2017	-		2.068	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Standard Missile-3 (SM-3) Block IIA Development - CA,VA, MD	MIPR	Various : CA, VA, MD	0.000	0.000		0.000		3.338	Nov 2017	-		3.338	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION	SS/CPIF	Raytheon : Tuscon, AZ	0.000	0.000		0.000		48.454	Nov 2017	-		48.454	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION - APL	MIPR	JHU/APL : Laurel, MD	0.000	0.000		0.000		12.994	Nov 2017	-		12.994	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Standard Missile-3 (SM-3) Block IIA Development	MIPR	NSWC DD : Dahlgren, VA	0.000	0.000		0.000		5.053	Nov 2017	-		5.053	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency** **Date:** May 2017

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD	<b>Project (Number/Name)</b> MM09 / Aegis BMD SM-3 Development
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Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
- MD09 - SM-3 BLK IIA INTEGRATION - DD															
Standard Missile-3 (SM-3) Block IIA Development - Standard Missile-3 (SM-3) Block IIA Development - NSWCCORona	MIPR	NSWC Corona : Corona, CA	0.000	0.000		0.000		1.266	Nov 2017	-		1.266	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Standard Missile-3 (SM-3) Block IIA Development - NSWCCrane	MIPR	NWSC/Crane : IN	0.000	0.000		0.000		1.161	Nov 2017	-		1.161	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		0.000		93.414		-		93.414	-	-	-

**Remarks**  
Increase from FY 2017 to FY 2018 (Raytheon, AZ) due to implementation of SM-3 IB Modernization

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	0.000	0.000	0.000	93.414	-	93.414	-	-	-

**Remarks**  
N/A

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PE 0603892C: AEGIS BMD UNCLASSIFIED  
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency	<b>Date:</b> May 2017
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>	<b>Project (Number/Name)</b> MM09 / <i>Aegis BMD SM-3 Development</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Kinetic Warhead hardware commonality (also known as Guidance Electronic Unit Engineering Change Proposal (GEU ECP)) CDR	1	2018	1	2018
GEU ECP Host GEU delta-CDR	1	2019	1	2019
GEU ECP Qualification	1	2020	1	2020

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MC09 / Cyber Operations			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MC09: Cyber Operations	1.700	1.225	0.879	2.340	-	2.340	14.970	22.506	23.079	20.177	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Increase from FY 2017 to FY 2018 is attributed to "Increasing cybersecurity requirements following the Secretary of Defense DoD Cybersecurity Discipline guidance to implement strong authentication, device hardening, reducing the attack surface and alignment to cybersecurity network defense services providers.

**A. Mission Description and Budget Item Justification**

Sustain the DoD RMF Certification and Accreditation process and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Systems Security Manager (PM/ISSM).

This project supports the monitoring and tracking of Cybersecurity mitigation detailed in Information Technology Security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Authorizing Official (AO). Independent Verification and Validation (IV&V) team actions ensure the availability, integrity, authentication, confidentiality and non-repudiation of the AB mission and non-mission systems, which includes test and remote site administrative systems. Activities in the Project are necessary to comply with the Federal Information Security Management Act (FISMA).

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> Network / System Certification and Accreditation (C&A)	1.225	0.879	2.340
<b>Articles:</b>	-	-	-
<p><b>Description:</b> This accomplishment has reoccurring efforts. Conduct cybersecurity engineering and architecture requirements planning or Aegis BMD systems. Plan and test the Risk Management Framework (RMF) controls for Ballistic Missile Defense System (BMDS) in regards to Aegis BMD systems to comply with new directive, RMF for DoD Information Technology (DoDi 8510.01) to replace the DoD Information Assurance Certification and Accreditation process (DIACAP). In addition, conduct Controls Validation Testing (CVT).</p>			
<p><b>FY 2016 Accomplishments:</b> Cyber security efforts were moved from MD09 to MC09 to match execution.</p>			
<p><b>FY 2017 Plans:</b> SEE ABOVE</p>			
<p><b>FY 2018 Plans:</b> Increase from FY 2017 to FY 2018 is attributed to increasing cybersecurity requirements and ensuring compliance of additional requirements</p>			

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MC09 / Cyber Operations				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2016	FY 2017	FY 2018
- Continue coordination and development of new and existing accreditation packages that comply with new directive, RMF for DoD Information Technology (DoDI 8510.01) process - Conduct regular Controls Validation Testing (CVT) and cooperative risk assessments to mitigate cybersecurity deficiencies - Develop and deploy Hardware and Software HW/SW implementation strategies for Continuous Monitoring activities at remote sites and Aegis BMD assets Monthly reviews of systems through the eMass -Daily management of eMass System Plan of Action and Milestones (POAMs)												
Accomplishments/Planned Programs Subtotals										1.225	0.879	2.340
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost	
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	1,260.480	862.080	828.097	-	828.097	630.842	651.047	567.451	551.701	Continuing	Continuing	
• 0603884C: Ballistic Missile Defense Sensors	233.020	230.077	247.345	-	247.345	247.643	362.850	401.267	497.503	Continuing	Continuing	
• 0603896C: Ballistic Missile Defense Command and Control, Battle Management & Communication	425.996	456.267	430.115	-	430.115	461.275	501.956	496.411	514.139	Continuing	Continuing	
• 0603898C: Ballistic Missile Defense Joint Warfighter Support	47.566	47.776	48.954	-	48.954	49.524	52.628	53.573	54.636	Continuing	Continuing	
• 0603904C: Missile Defense Integration and Operations Center (MDIOC)	46.191	54.750	53.265	-	53.265	54.505	57.588	58.574	59.738	Continuing	Continuing	
• 0604878C: Aegis BMD Test	78.468	95.012	134.468	-	134.468	73.059	82.570	113.856	97.660	Continuing	Continuing	
• 0604880C: Land Based SM-3 (LBSM3)	29.288	43.293	30.486	-	30.486	31.816	33.024	31.707	30.924	Continuing	Continuing	
• 0604881C: AEGIS SM-3 Block IIA Co-Development	165.456	106.038	9.739	-	9.739	0.000	0.000	0.000	0.000	0	281.233	
• 0901598C: Management HQ - MDA	35.871	31.160	29.947	-	29.947	28.024	27.269	27.878	28.450	Continuing	Continuing	



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency										<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD				<b>Project (Number/Name)</b> MC09 / Cyber Operations			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2018</u>	<u>FY 2018</u>	<u>FY 2018</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Complete</u>	<u>Total Cost</u>
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
Full and Open contract support through Missile Defense Agency Program Management Office.											
<b>E. Performance Metrics</b>											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MC09 / Cyber Operations					
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - BOOZ ALLEN HAMILTON INC	C/CPIF	MDA : MCLEAN, VA	0.643	1.086	Nov 2015	0.644	Oct 2016	2.340	Nov 2017	-		2.340	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPIF	Torch Technologies : Huntsville, AL	1.057	0.139	Nov 2015	0.235	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			1.700	1.225		0.879		2.340		-		2.340	-	-	-
Remarks N/A															
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			1.700	1.225		0.879		2.340		-		2.340	-	-	-
Remarks N/A															

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency														Date: May 2017															
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD										Project (Number/Name) MC09 / Cyber Operations									
Significant Event Complete ▲					Milestone Decision Complete ★					Element Test Complete ◆					System Level Test Complete ●					Complete Activity ◆									
Significant Event Planned △					Milestone Decision Planned ☆					Element Test Planned ◇					System Level Test Planned ○					Planned Activity ◇									
										FY 2016		FY 2017		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022							
MC09 Cyber Operations										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency			Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MC09 / Cyber Operations	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC09 Cyber Operations	1	2016	4	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MX09 / Aegis BMD Development Support			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MX09: Aegis BMD Development Support	32.016	80.312	68.283	169.325	-	169.325	177.360	174.101	182.794	197.100	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Increase from FY 2017 to FY 2018 reflects transfer of Program Operations from Project MD09, Aegis BMD.

**A. Mission Description and Budget Item Justification**

Aegis Ballistic Missile Defense (BMD), in accordance with negotiated agreements between the United States Navy and the Missile Defense Agency (MDA) has identified and segregated funding for Developmental Support of Aegis BMD specific elements resident aboard Aegis capable Navy ships. Computer Program Support consists of, but is not limited to, reviews of Technical Observation Reports (TORs) that are generated by ship crews during exercises or deployments, determination of root causes and preparation of Computer Program Change Request (CPCR) to correct TORs, updates to the in-service computer program to apply, test and certify multiple CPCRs, and tests installation of Aegis Weapon System (AN/SPY-radar/Fire Control System (FCS)) alignment updates as required. Aegis BMD provides support to Annual Integration Events (AIEs) to ensure any updated Aegis Combat System (ACS) computer programs do not degrade BMD equipped ships and provides distance and technical support for BMD equipped ships. Additionally, Aegis BMD continues to analyze the Ballistic Missile Defense System (BMDS) elements to ensure that any and all Aegis continues to work with Program Executive Office (PEO) Integrated Warfare Systems (IWS) and PEO Command, Control, Communications, Computers, & Intelligence (C4I), Aegis' Navy counterparts, in order to maintain common C4I top level requirements for all Aegis BMD Baselines.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> Fleet Integration	10.980	6.552	9.257
<b>Articles:</b>	-	-	-
<p><b>Description:</b> Provide Fleet operations and mission support to enable the conduct of sustained BMD operations; advocate war fighter requirements and fleet feedback in baseline development and capability upgrades to Aegis BMD weapon system; provide analysis and Mission Planning support for Geographic Combatant Commanders for operational application of Maritime BMD capabilities; and provide BMD Capabilities Analysis and Exercise Support for Aegis BMD baselines under development or currently deployed in the Operational Fleet.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> <li>- Define, develop and review Joint and Fleet Doctrine for incorporation of Aegis BMD capability transition to warfighter and baseline acceptance into MDA Operational Capacity Baseline (OCB)</li> <li>- Research and define certification and warfighter acceptance requirements for Aegis BMD baselines to ensure successful capability delivery</li> </ul>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MX09 / Aegis BMD Development Support	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>- Develop Aegis BMD training simulations and scenarios to support shipboard training including BMD Qualification (BMDQ) and higher level exercises</li> <li>- Execute warfighter feedback process to enhance Aegis BMD functional capability development and influence future Aegis BMD requirements and support MDA Test Community and Combatant Commanders in BMD Exercises and Wargames</li> </ul> <p><b>FY 2016 Accomplishments:</b> Beginning in FY 2016, transferred from Project MD09, Fleet Integration</p> <ul style="list-style-type: none"> <li>- Provided In-service Engineering support to Aegis Ballistic Missile Defense (BMD) ships and resolve any identified issues</li> <li>- Provided leadership, engineering, and technical support to conduct Aegis BMD Combat System Readiness to resolve any identified issues</li> <li>- Responded to Fleet training, analysis, and operational integration of maritime capabilities as part of Aegis BMD installations, BMD operations and BMD events and resolved any interoperability issues</li> <li>- Provided reach back analytical support to the Combatant Commanders (COCOMs) for real world operations and resolved Aegis BMD ship readiness issues</li> <li>- Provided maintenance and updates for Force on Force Modeling and Simulation to ensure accurate characterization of capability is provided to the warfighter community</li> <li>- Prepared and coordinated training documents for new BMD baselines to ensure that operators were provided current BMD baseline material for training</li> <li>- Provided BMD specific training to BMD ships, COCOM, and Fleet Staffs to ensure full interoperability between Aegis BMD ships and Fleet staffs</li> </ul> <p><b>FY 2017 Plans:</b> Increase from FY 2016 to FY 2017 is due to transition of responsibility for Aegis Scenario Development System to Fleet Integration from Aegis BMD Weapon System Support. This system enables Aegis BMD shipboard training for developmental Aegis BMD baselines.</p> <ul style="list-style-type: none"> <li>- Execute Aegis BMD capabilities analysis for Combatant Commanders and Fleet staffs</li> </ul> <p><b>FY 2018 Plans:</b> Increase from FY 2017 to FY 2018 is due to COCOM operational analysis to support and inform both regional and homeland defense design implementation for Aegis BMD ship capability. To include but not limited to the following:</p> <ul style="list-style-type: none"> <li>- Provide analysis for Anti-Ship Ballistic Missile Defense</li> <li>- Provide analysis on parametric organic sensor sensitivity</li> <li>- Provide analysis on up-range ship/sensor support for LOR, EOR, and Cued engagements</li> <li>- Provide analysis on impacts of countermeasures</li> </ul>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD		<b>Project (Number/Name)</b> MX09 / Aegis BMD Development Support	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
- Provide analysis on developing threats					
<b>Title:</b> Infrastructure Upgrades			25.262	20.439	20.866
<b>Articles:</b>			-	-	-
<p><b>Description:</b> This project includes Special Access Program (SAP) infrastructure labor to include Contractor Program Security Officers, Information Assurance Officers, and System Administrators that will oversee the data transfer efforts. Funds IT services in support of the Aegis RDT&amp;E mission. This includes: IT help-desk services; portal and data services; records management; business automation services; and desktop and Special Purpose Processing Nodes (SPPNs) maintenance and licenses. In addition, funds will be used to replace critical IT infrastructure at end-of-life and to implement DoD mandated projects in support of the Joint Information Environment (JIE) initiative.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> <li>- Transfer necessary data between collateral and SAP environments to comply with Federal and DoD mandates (Cybersecurity and Joint Information Environment)</li> <li>- Configuration and data management to ensure Modeling and Simulation (M&amp;S) and software builds are identical in collateral and SAP environment</li> <li>- Fund Aegis IT services such as IT help-desk services; portal and data services; records management; business automation services; and desktop and SPPN maintenance and licenses.</li> <li>- Fund critical end-of-life IT equipment replacements</li> <li>- Fund IT infrastructure upgrade planning and implementation efforts to accomplish DoD mandated IT projects (JIE and DoD CIO Information Resources Management (IRM) initiatives)</li> </ul> <p><b>FY 2016 Accomplishments:</b> Initiate new security efforts as directed by the Security Classification Guide (SCG) and the consolidation and realignment of funds from MD09, MD40 and MT09 for IT services in support of the Aegis RDT&amp;E mission.</p> <p>SEE ABOVE</p> <p><b>FY 2017 Plans:</b> Increase from FY 2016 to FY 2017 is attributed to additional security efforts as directed by the Security Classification Guide (SCG)</p> <p>SEE ABOVE</p> <p><b>FY 2018 Plans:</b> - Provide standard IT core user services in support of the Aegis BMD RDT&amp;E mission as follows:</p>					

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<div>- IT core services encompassing end user services including the Microsoft productivity suite including Microsoft Word, Excel, PowerPoint, Access and Lync</div> <div>- Public Key Enabling software such as Active Identity client software which enables secure workstations with smart cards to enforce strong authentication for network security</div> <div>- IT help-desk services, IT consumables, hardware break-fix, end-of-life equipment replacements and IT asset management. Access to the MDA business applications and portal services such as SharePoint for data management services and records management. It includes Unified Communications services such as telephony, wireless services and Video Teleconferencing capabilities</div> <div>- Provide security support, network administration, performance monitoring, and technical support for SAP infrastructures and computing suites</div>				
<div>Title: Aegis Ballistic Weapon System Support</div> <div>Articles:</div> <div>Description: This project provides Command, Control, Computer, Communications and Intelligence (C4I) systems engineering for the development and fielding of Aegis Ballistic Missile Defense (BMD) communications systems which includes Aegis BMD and BMDS interoperability, integration of space and joint sensors systems with Aegis BMD and Aegis BMD baseline certifications; IAMD planning; and maintaining Top Level Requirements (TLR) between the Missile Defense Agency and the Navy. It also provides Aegis BMD Mission and Quality Assurance, supporting assessment of flight test readiness and ensuring identification of root causes of failures/non conformances and sufficiency of corrective actions.</div> <div>Recurring Accomplishments:</div> <div>- Monitor and address Fleet feedback concerns raised during waterfront technical exchanges and ship visits</div> <div>- Update threat adaptation data to keep pace with emergent threats</div> <div>- Provide support for contingency operations of National interest</div> <div>- Support the fielded Aegis BMD computer programs baselines approved as an Operational Capability Baseline</div> <div>- Provide engineering support to Operationally Capable Baseline ships that participate in BMD test events</div> <div>- Perform system troubleshooting and maintenance as required for Aegis BMD related systems</div> <div>- Provide preventative and corrective maintenance services and upgrades in support of Aegis BMD systems and associated support systems</div> <div>FY 2016 Accomplishments:</div> <div>Computer Program Development Support efforts transferred from Project MX09, Aegis BMD Operations and Support</div>		44.070 -	41.292 -	34.999 -



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency		<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD	<b>Project (Number/Name)</b> MX09 / Aegis BMD Development Support	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>
<ul style="list-style-type: none"> <li>- Conducted (C4I) systems engineering for the development of Aegis BMD requirements, analysis of development efforts by other BMDS element for potential Aegis BMD interoperability issues, and resolve identified interoperability problems</li> <li>- Implemented C4I systems for operational deployment by Aegis BMD ships and elements</li> <li>- Maintained C4I Top Level Requirements (TLRs) for development of systems supporting command and control, and communications equipment between Navy and MDA Program Executive Offices</li> <li>- Certified Deterministic Routing for Aegis Ashore and Aegis BMD ships, including development of Concepts of Operation (CONOPS), and Tactics for use of this capability, and deployment of operational assets</li> <li>- Conducted Navy and Joint Link certifications required for BMD Baseline certifications for operational deployment</li> <li>- Certified overhead satellite data sources to meet Aegis BMD fire control capabilities in support of dual path requirement in Aegis BMD 5.1</li> <li>- Developed and implemented collaborative IAMD planning tools to ensure effective Strategic Homeland, Regional, and Theater Aegis BMD employment</li> <li>- Implemented and managed C4I aspects of the BMDS Test Site (BTS) San Diego upgrade plan to maintain fleet representative C4I configurations to support testing, troubleshooting, and Fleet operations</li> <li>- Conducted Mission and Quality Assurance (QA) reviews for failures and non-conformance for the SM-3 Block IIA</li> <li>- Conducted test event analysis to investigate Technical Observation Reports (TORs) and BMDS Deficiency Reports (BDRs)) in order to provide an engineering solution for impacts to Aegis BMD capabilities</li> <li>- Developed Computer Program Change Requests (CPCRs) and determine appropriate baseline for insertion</li> </ul> <p><b>FY 2017 Plans:</b> Decrease in funding from FY 2016 to FY 2017 is due to:</p> <ul style="list-style-type: none"> <li>-Completion of Operational Testing for BMD 3.6 and BMD 4.0 transferred computer program sustainment activities for these baselines to Operations &amp; Maintenance appropriation</li> </ul> <p>FY 2017 requirement supports:</p> <ul style="list-style-type: none"> <li>- Prior to completion of operational testing, sustain Aegis BMD computer program baseline variants of Baseline 9 Common Source Library (CSL)</li> <li>- Provide one Baseline 9 maintenance build</li> <li>- Sustain the Beowulf classified computing infrastructure</li> <li>- Sustain the Automated Test and Analysis (ATA) / Automated Test and Retest (ATRT) tool</li> <li>- Provide test site usage for maintenance and support of baselines under development</li> <li>- Provide C4I Systems Engineering for the development of requirements, analysis of BMDS elements, and interoperability</li> </ul>			

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency			Date: May 2017		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2017	FY 2018
<div><div>- Certify Deterministic Routing of Aegis Ashore and Aegis BMD including Concepts of Operations(CONOPS)/Tactics, Techniques, and Procedures (TTP)</div><div>- Implement and certify BMD capabilities in C4I systems</div><div>- Conduct Navy and Joint Link certifications required for BMD baseline certifications</div><div>- Certify Overhead Persistent Infrared (OPIR) for dual path requirement in BMD 5.1</div><div>- Develop and implement IAMD planning capabilities and BMD collaborative planning concepts</div><div>- Provide FFRDC) and URDC evaluation of technical proposals and proposed technical solutions by small industry business partners; Provide feasibility analysis of proposed solutions and testing of hardware prototypes</div><div>- Facilitate preliminary integration efforts to incorporate Space Based Infrared Systems (SBIRS) and Future Naval Capability (FNC) projects into Aegis BMD architecture</div></div> <div><div><b>FY 2018 Plans:</b></div><div>Decrease from FY 2017 to FY 2018 is due to completion of BMD 5.x efforts</div><div><div>- Conduct Common Source Library fair share support for maintenance of Baseline 9 computer program variants</div><div>- Conduct test event analysis to investigate Technical Observation Reports (TORs) and BMD Deficiency Reports (BDRs) in order to provide an engineering solution for impacts to Aegis BMD capabilities</div><div>- Monitor and address Fleet feedback concerns raised during waterfront technical exchanges and ship visits</div><div>- Update threat adaptation data to keep pace with emergent threats</div><div>- Conduct system engineering and maintenance for the Beowulf Data Center. This effort also includes security, Information Assurance (IA), systems administration, performance monitoring and technical support for the classified and unclassified network infrastructure supporting Aegis BMD program environments and activities</div><div>-Provide operation and maintenance of land based test sites used for the development of Aegis BMD baselines. Operation and maintenance includes Quality Assurance, Configuration Management and other support activities to both baseline development and the sites. Engineering, logistic, quality assurance, configuration management and administrative support for the operation and maintenance of the Aegis shore sites and centers in support of the delivery of BMD baselines</div></div></div>					
<div><div>Title: Program Operations</div><div>Articles:</div><div>Description: This activity funds the Government, contractor, and Federally Funded Research and Development Center (FFRDC) workforce that manage the overall Aegis Ballistic Missile Defense (BMD) program and enables the program to develop, build, and test standard missiles and the associated Aegis Weapon Systems. This project includes all operations support for the Aegis program office in Engineering, Testing, Logistics, Acquisition, Safety, Quality Assurance, Finance, Budget Formulation and Execution, Cost Estimation, and Earned Value Management in support of development activities.</div><div>FY 2016 Accomplishments:</div></div>			0.000 -	0.000 -	104.203 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency										<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD				<b>Project (Number/Name)</b> MX09 / Aegis BMD Development Support				
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>										<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
N/A												
<b>FY 2017 Plans:</b> N/A												
<b>FY 2018 Plans:</b> Reflects transfer of Program Operations from Project MD09, Aegis BMD. Decrease from FY 2017 to FY 2018 reflects cost savings attained through consolidation of contractor tasks and efforts performed in support of the Aegis program.												
<b>Accomplishments/Planned Programs Subtotals</b>										80.312	68.283	169.325
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• 0604878C: Aegis BMD Test	78.468	95.012	134.468	-	134.468	73.059	82.570	113.856	97.660	Continuing	Continuing	
• 0604880C: Land Based SM-3 (LBSM3)	29.288	43.293	30.486	-	30.486	31.816	33.024	31.707	30.924	Continuing	Continuing	
• 0604881C: AEGIS SM-3 Block IIA Co-Development	165.456	106.038	9.739	-	9.739	0.000	0.000	0.000	0.000	0	281.233	
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
The Aegis Ballistic Missile Defense (BMD) element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall Ballistic Missile Defense System (BMDS) capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Aegis BMD program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the Standard Missile-3 (SM-3) and the Aegis BMD Weapon System, respectively.												
Competition will be maximized for purchase of any products or services as appropriate.												
<b>E. Performance Metrics</b>												
N/A												

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MX09 / Aegis BMD Development Support					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Remarks N/A															
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Fleet Integration - MX09 - Fleet APL	C/CPAF	JHU/APL/MD : Columbia, MD	0.000	6.192	Nov 2015	1.681	Nov 2016	4.746	Nov 2017	-		4.746	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet DD	MIPR	NSWC DD : Dahlgren, VA	0.000	2.913	Nov 2015	2.863	Nov 2016	2.979	Nov 2017	-		2.979	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet PHD	MIPR	NSWC PHD : Port Huenmene	0.000	0.432	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet SMDC	MIPR	SMDC/ARSTRST : Huntsville, AL	0.000	0.369	Nov 2015	0.529	Nov 2016	0.468	Nov 2017	-		0.468	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet CSCS	MIPR	CSCS : Dahlgren, VA	0.000	1.074	Nov 2015	1.479	Nov 2016	1.064	Nov 2017	-		1.064	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - ICT Funding	SS/CPAF	Northrop Grumman : AL,CA,CO,NM,VA,HI	0.000	11.832	Oct 2015	9.771	Oct 2016	13.282	Nov 2017	-		13.282	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S APL	SS/CPAF	JHU/APL : Laurel, MD	0.000	0.400	Nov 2015	0.650	Nov 2016	0.700	Nov 2017	-		0.700	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S Corona	MIPR	NSWC Corona : Corona, CA	0.000	0.630	Nov 2015	1.000	Nov 2016	1.000	Nov 2017	-		1.000	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S LM	C/CPAF	Lockheed Martin : Moorestown, NJ	0.928	7.900	Nov 2015	2.410	Nov 2016	2.356	Nov 2017	-		2.356	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S MIT	C/CPAF	MIT : Lexington, MA	0.000	0.120	Nov 2015	0.200	Nov 2016	0.200	Nov 2017	-		0.200	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S RMS	C/CPAF	Raytheon : Tucson, AZ	0.000	3.720	Nov 2015	2.100	Nov 2016	2.100	Nov 2017	-		2.100	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09- D	MIPR	SPAWAR : CA	0.000	0.000		3.598	Jan 2017	0.426	Nov 2017	-		0.426	Continuing	Continuing	Continuing

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Missile Defense Agency</b>												<b>Date: May 2017</b>			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD						<b>Project (Number/Name)</b> MX09 / Aegis BMD Development Support			
<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Infrastructure Upgrades - MX09- S DD	MIPR	NSWC DD : Dahlgren, VA	0.949	0.660	Nov 2015	0.710	Nov 2016	0.802	Nov 2017	-		0.802	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW APL	SS/CPFF	JHU/APL : Columbia, MD	2.890	0.900	Nov 2015	0.945	Nov 2016	0.981	Nov 2017	-		0.981	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW DD	MIPR	NSWC DD : Dahlgren, VA	8.991	5.000	Nov 2015	3.156	Nov 2016	3.277	Nov 2017	-		3.277	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW LM	C/CPFF	Lockheed Martin : Moorestown, NJ	10.740	12.000	Nov 2015	8.856	Nov 2016	9.196	Nov 2017	-		9.196	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW NAVSEA	MIPR	NAVSEA : Washington, DC	0.863	12.780	Nov 2015	17.953	Nov 2016	18.644	Nov 2017	-		18.644	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW SSCPAC	MIPR	SPAWAR : San Diego, CA	0.000	2.390	Nov 2015	0.000		1.520	Nov 2017	-		1.520	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW TECH REP	MIPR	Tech Rep : Moorestown, NJ	0.000	0.600	Nov 2015	0.345	Nov 2016	0.358	Nov 2017	-		0.358	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW Wallops	MIPR	SCSC : Wallops Island, VA	0.000	2.000	Nov 2015	0.299	Nov 2016	0.310	Nov 2017	-		0.310	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - D	MIPR	MDA : Arlington, VA	0.000	1.037	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - IH	MIPR	NSWC Indian Head : MD	0.249	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - Raytheon	SS/CPAF	Raytheon : AZ	5.644	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD Corona	MIPR	NSWC Corona : Corona, CA	0.762	0.240	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MX09 / Aegis BMD Development Support					
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Weapon System Support - MX09 - TD JHU/APL	SS/CPFF	JHU/APL : Columbia, MD	0.000	0.750	Nov 2015	0.906		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD MITRE	MIPR	CECOM - MITRE : Dahlgren, VA	0.000	0.900	Nov 2015	1.328		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD NSWC DD	MIPR	NSWC DD : Dahlgren, VA	0.000	0.820	Nov 2015	1.110		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD PHD	MIPR	NSWC PHD : Port Hueneme, CA	0.000	0.250	Nov 2015	0.319		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD SSCPAC	MIPR	SPAWAR : San Diego, CA	0.000	3.903	Nov 2015	5.388		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW PHD	MIPR	NSWC PHD : Port Hueneme, CA	0.000	0.500	Nov 2015	0.687	Nov 2016	0.713	Nov 2017	-		0.713	Continuing	Continuing	Continuing
Program Operations - Program Operations - MD09 - Civ Sal	MIPR	MDA : Arlington, VA	0.000	0.000		0.000		35.358	Nov 2017	-		35.358	Continuing	Continuing	Continuing
Program Operations - Program Operations - MD09 - DD PM	MIPR	NSWC DD : Dahlgren, VA	0.000	0.000		0.000		4.932	Nov 2017	-		4.932	Continuing	Continuing	Continuing
Program Operations - Program Operations - MD09 - IT	MIPR	MDA : Arlington, VA	0.000	0.000		0.000		1.402	Nov 2017	-		1.402	Continuing	Continuing	Continuing
Program Operations - Program Operations - MD09 - MDA Travel	MIPR	MDA : Arlington, VA	0.000	0.000		0.000		2.165	Nov 2017	-		2.165	Continuing	Continuing	Continuing
Program Operations - Program Operations - MD09 - MIDAESS	MIPR	MDA : Arlington, VA	0.000	0.000		0.000		40.197	Nov 2017	-		40.197	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency** **Date:** May 2017

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD	<b>Project (Number/Name)</b> MX09 / Aegis BMD Development Support
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Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - MD09 - NAVSEA Civ Sal	MIPR	NAVSEA : Washington, DC	0.000	0.000		0.000		13.691	Nov 2017	-		13.691	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA RB Sal	MIPR	NAVSEA : Washington, DC	0.000	0.000		0.000		2.225	Nov 2017	-		2.225	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA Training, Various	MIPR	NAVSEA : Washington, DC	0.000	0.000		0.000		1.526	Nov 2017	-		1.526	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA Travel	MIPR	NAVSEA : Washington, DC	0.000	0.000		0.000		1.056	Nov 2017	-		1.056	Continuing	Continuing	Continuing
Program Operations - MD09 - Security	MIPR	Various VA : VA	0.000	0.000		0.000		1.651	Nov 2017	-		1.651	Continuing	Continuing	Continuing
<b>Subtotal</b>			32.016	80.312		68.283		169.325		-		169.325	-	-	-

**Remarks**  
N/A

Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

**Remarks**  
N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Missile Defense Agency</b>												<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603892C / AEGIS BMD				<b>Project (Number/Name)</b> MX09 / Aegis BMD Development Support				

  

Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

  

<b>Remarks</b> N/A															
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	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	32.016	80.312		68.283		169.325		-		169.325	-	-	-

  

<b>Remarks</b> N/A															
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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency														Date: May 2017															
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD										Project (Number/Name) MX09 / Aegis BMD Development Support									
Significant Event Complete ▲				Milestone Decision Complete ★				Element Test Complete ◆				System Level Test Complete ●				Complete Activity ◆													
Significant Event Planned △				Milestone Decision Planned ☆				Element Test Planned ◇				System Level Test Planned ○				Planned Activity ◇													
										FY 2016		FY 2017		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022							
MX09 Aegis BMD Development Support										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇						

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>	<b>Project (Number/Name)</b> MX09 / <i>Aegis BMD Development Support</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MX09 Aegis BMD Development Support	1	2016	4	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD40 / Program-Wide Support			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MD40: Program-Wide Support	195.796	36.138	43.876	41.634	-	41.634	40.306	37.335	32.153	33.815	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2016, Program Wide Support (PWS) reflects a proportional change as a result of decreases in BMD Aegis and in FY 2017, reflects a proportional change as a result of increases in BMD Aegis. FY 2018 reflects a proportional change as a result of decreases in BMD Aegis.  
Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

**A. Mission Description and Budget Item Justification**

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians, and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation and, provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs includes: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> Program Wide Support  <b>Description:</b> N/A  <b>FY 2016 Accomplishments:</b> N/A  <b>FY 2017 Plans:</b> N/A  <b>FY 2018 Plans:</b> N/A		36.138	43.876	41.634
	<b>Articles:</b>	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>		36.138	43.876	41.634

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD40 / Program-Wide Support
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		
E. Performance Metrics NA		

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD40 / Program-Wide Support					
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance SRM (MIPR)	MIPR	Various : Multi: AL, CO, CA, VA, AK	0.174	0.000		1.220	Jan 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	1.353	0.199		0.876	Jul 2017	0.833	Jul 2018	-		0.833	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various/Multi: AL, CA, CO, : NM, VA, various	0.623	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries	Allot	MDA : Multi: AK, AL, CO, CA, VA	134.181	28.734	Nov 2015	36.828	Nov 2016	37.906	Nov 2017	-		37.906	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various : Multi: AK/AL/CA/CO/HI/MD/VA/NJ/NY/OCONUS	30.979	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CA, CO, VA	26.306	6.961	Nov 2015	4.705	Aug 2017	2.895	Aug 2018	-		2.895	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support, International, and materiel and Readiness	MIPR	Naval Surface Warfare Center : AL, VA	1.123	0.244	Mar 2016	0.247	Mar 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	MIPR	Various : Multi: AL, CA, CO, VA	1.057	0.000		0.000		0.000		-		0.000	1.615	2.672	0
Subtotal			195.796	36.138		43.876		41.634		-		41.634	-	-	-
Remarks N/A															
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			195.796	36.138		43.876		41.634		-		41.634	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency							Date: May 2017		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD		Project (Number/Name) MD40 / Program-Wide Support			
	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Remarks N/A									

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency														Date: May 2017																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency	<b>Date:</b> May 2017
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603892C / <i>AEGIS BMD</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2016	4	2022